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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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A BETTER NEW YEAR.

Let us hope so, at any rate. The past has been for the most part one of those about which the best that can be said is that it might have been worse. That, after all, is not a little to say, remembering its immediate predecessors. War sears from without and bitter political recrimination at home have not, so far, stopped the flow of the rising tide of better employment among the workers. Trade suffers, of course, even from coronation rejoicings on the one hand, and railway and dock strikes on the other; but, when genuine jobs about the wage-earner prosper, and even if some of his better wages go to the cinematograph shows, some of us may have had little better else to do have made a little by building and adapting them. Content, perhaps, with running our friends the doctors, Mr. Lloyd George has let the building trades alone this past year, except to the extent of the insurance tax, which we are to pay—or not to pay, which is it?—in common with the rest of the recipients of his refreshing fruit. A vision of panels of architects and builders all compelled to carry out town-planning schemes and build "garden cities" for next to nothing, many of course, for his "false imagination any day, and we shall resign ourselves to it as the axels do to skinning, remembering, after all, if we are good Liberals, *Lucifer in Scythiam qui vult ritare Charpydim!*

In the meantime, let us be thankful that some of our clients and customers do occasionally pay us, even if they spoil our buildings—unlike some of the garden city promoters, who, so Mr. Asplbee says, do not pay but do spoil. All the people who are making money hand over fist will not live ever in motor-cars. No English or Scottish architect, probably, need apply for the Professorship of Housing and Town Planning his compatriots want to endow as a "national tribute" to the Chancellor of the Exchequer at the University of Wales; so the general public may still find, here and there, perhaps, an architect not too proud to work, or the busy as a University Professor to do much else than criticise his less lucky brethren. May they find him, ere the year closes, a prosperous unit of an undivided and registered profession, guarded from the intrusion of the charlatans, and guaranteed the standing which is the client's best guarantee for good work. May it rain his competitors in such numbers that only thousand-pound premiums shall attract competitors. May capitalists see once more that no investments can vie with bricks and mortar—and cement, of course—as solid and golden investments. May every municipality want a new town hall, or art-gallery, every

merchant prince or noble a new mansion, every millionaire find his way to our sanctum as Holloway did years ago in search of an architect, every cried his chief joy in the funds for a new cathedral as big as that at Olympia—all except the doors! That is "a miracle," you say? Perhaps all are miracles. Not half enough to work them? Let charity, anyhow, and good fellowship, and plucky endurance stand us all still in good stead as they did our fathers in the "good old times," which, oftener than we think, were as bad as ours.

THE RESPONSIBILITIES OF ARCHITECTS.

There was a debate and discussion at the R.I.B.A. on the 18th ult., upon "The New Responsibilities of Architects." No subject could well be chosen of greater interest and importance to the profession, to builders, and, incidentally, to such of the public as have the courage to become building owners. Papers were read by two well-known architects, Mr. W. H. White and Mr. Edward Greenop, and the discussion was enlivened, or enlightened, by two lawyers, Mr. Montague Brier and Mr. Blanco White. The whole of these proceedings were reported so fully as we were able in our issue of December 22, 1911. Now, in reading over this mass of matter the first point noticeable is the clash of conflicting ideals between the architects and the lawyers. It is, of course, temperamental, if not fundamental. Architects are artistic first, and men of business afterwards; they never can be lawyers. Those who follow the law aim at logic and exactitude, though, to be sure, they often miss or muddle both. The architect is inspired by the spirit of his building, and for him the letter killeth. He seeks to, and does, act in an artistic, and often artistic, way in carrying out his conceptions. The lawyer is compelled to keep his eye on the contract, the facts, and the business—the better, indeed, in black and white, so of course they come into collision. Mr. Greenop opened his paper with a reference to this matter, and he suggested that "a good architect must be half a lawyer" and lawyers should be half architects. We fear that if such a plan were workable, both would be useless. A mixture of the artistic and legal mind in equal parts would be a curious, if possible, compound. The professions have basic differences in their modes of thought which are entirely irreconcilable. It certainly is essential that every architect should also be a man

of business. But that is a very different thing from seeking to become a lawyer. It is practically impossible to acquire the legal habit of mind without training.

Take Mr. Greenop himself as an example. He gladly opens his paper by saying he will only refer to "leading cases." Yet he quotes reports of actions tried before special and common juries, or judges sitting alone in London or circuit, or the Official Referee, as if these decisions were precedents. Now, by a "leading case" a lawyer means a judgment that becomes an authority for future use, to be quoted in other Courts. But these verdicts of juries are of no value whatever, save to the parties concerned, except as somewhat further illustrations of the happening of the unexpected or indications of the muddle of the middle-class mind on such matters. Nor are the judgments of inferior dicta by judges sitting at Nisi Prius of much more worth, for they are merely passing decisions upon the evidence given. They are not officially reported, and they are not even binding upon similar judges of equal jurisdiction. We fear that the collection of newspaper cuttings of this kind will only cause confusion to the collector, although they may be useful as warnings against running the risks of the law's uncertainty. Lawyers, therefore, would not admit these to be leading cases, and, indeed, they would prefer styling them misleading decisions. The vagaries of juries, whether frankly called "common," or those that are, humbly, still named "special," do no weight at all in legal opinion, being based only upon conflicting evidence, swayed by advocacy, and darkened by prejudice. Nor are judgments at Nisi Prius usually included in the law reports, which give the cases really quotable. Indeed, it is practically only the reports of the Chancery judges, the Divisional Courts, the Court of Appeal, and the House of Lords, that are of any value, and that greatly varying, as authorities. It is said that lawyers differ, and of course they do, as do doctors, and as do judges and Courts. Recorded cases have often shown that after the ruling of a Civil Court has been upheld and then reversed by intervening appeals, it has had to be restored by the House of Lords. Those things are inevitable. Law can never be an exact science in the sense of mathematics, although even there we find distinct divergences of opinion. Law must always deal with facts, and these are constantly getting confused with facts that are hard to distinguish from reality.

Although we have tried to explain the lawyer's position in these matters, it has been done mainly with the view of answering the suggestion that every architect should himself be half a lawyer. There is an old proverb about a man who acts as his own lawyer. To combine these two entirely opposite modes of thought is surely impossible. But we have the deepest sympathy with all architects in regard to their position of responsibility. The law, as it affects them, is even more unsatisfactory than it is in its dealings with the public or with other professions. Their responsibilities are a mine of risk because they are of so uncertain and indefinite a nature. An architect working well and fairly in his high calling ought to be rewarded, except in the few cases where the legal expert has a strong case against him by the fact that he has entered into with the other party a contract. This contract is truly a source of vexation of the whole matter. However, the litigation may be, and how it may diverge, it all comes back to the contract in the end. This is a common theme in the mind of the lawyer. Now, we are of the Practice Committee of the R.I.B.A. have been working for so many years upon the revision of the forms commonly used. It may be doubted whether any committee could do more, or could even draw up a contract which shall be clear and definite and yet hold water when it comes to the test of litigation. It is true that at least in its final form, a building contract, to be complete and effective, must be the work of the mind of one man. What less fortunate is generally done is to set up the holes discovered by leakage in existing forms by patching. The result is that new clauses or modifications are frequently added, causing more confusion when the time for its legal construction by the Court arrives. We venture to think that the standard building contract should be made shorter and simpler, and stronger, by striking out all sorts of provisos that are seldom needed, and are never read. If a contract were drawn up on bold lines, and a clear plan, most of the faults of all work could be omitted and left to arbitration. But that method presumes that the architect shall be made, in law and in fact, the sole arbitrator from the beginning, that he will act throughout in that judicial capacity, and that his award will be accepted by all parties as final and conclusive.

It is just here that we find the hillocks of the whole business. Will the architect accept the full position, powers and responsibilities of an arbitrator from the beginning to the end of the job? The building owner would doubtless do as advised, and the builder must perfect take on the whole contract or let it alone. The divergencies in the decisions that were quoted by Mr. Gump, and in the views of the lawyers who spoke at the meeting, arose out of the confusion caused by the way in which the contracts were drawn. It is not much use saying a clause that the architect shall be arbitrator shall be conclusive if you then say that while it away by exceptions and provisos. So architects have got into the meshes of constructive arbitration, and have been told by the Courts that they were really acting judicially as arbitrators when they thought they were only signing final certificates upon receipts and papers put fairly before them. But if an architect is created and avowedly acts as arbitrator between the parties, the position is plain and his high duty is defined. A contract can be so drawn as to prevent litigation where provision is properly made for the architect being sole arbitrator. His award would

be declared final. There would, of course, remain questions of negligence or fraud or collusion, with which we are not here concerned. There might also be real points of law arguable in the usual way, generally in the Court of Appeal, when the award has been made a rule of Court, and enforceable as such. But these cannot be avoided, and may arise out of any arbitration, however guarded against. The architect can no longer vaguely pose as being something between the agent of the building owner and the final arbitrator of the whole business. It is mainly by confining these opposing parts that troubles have arisen.

By making the architect of the job the arbitrator between the parties we should substitute his final award for his final certificate. The award would be given a higher sanction, but it would be made under judicial responsibility. There is no reason why the architect should not be guided by expert legal advice in making that award, paying fees properly chargeable to the business. The thing to aim at is a real finality. Now that the Courts have raised the point of constructive arbitration upon these certificates, their finality is very much weakened. Recent litigation has shown this conclusively. It is, indeed, not only the law's uncertainty as to victory at the finish that dismays all who enter into the gloom of the law courts; it is still more the cumbersome and costliness of its methods. Juries are of course, worse than useless for such disputes. Then there is the "Official Referee," about a large house at Cambridge, and which lasted for forty days, shows how entirely unsatisfactory his hearings must be, in the very nature of things. The costs ran into thousands of pounds, and may be gauged by the fact that the shorthand writers' bill alone was some £1,200. The real legal fight has, probably, still to come, and so far, after all this waste of time and money, that case has settled nothing of any value to others than the parties concerned, while even they are doubtless both left sore and unsatisfied.

But if the architect is made sole arbitrator of the contract job, he must act as such throughout the job, avowedly and accordingly. He must hear both sides where there is any dispute, and he must judge fairly and impartially between them. All this means more work and more worry than the old method of signing a final certificate, and so having done with the matter. Even if this suggestion cannot always be adopted, at least steps could be taken to stop the existing facilities for litigation between owners and builders. The contract can provide for arbitration under the auspices of the R.I.B.A. itself, and make this the only tribunal possible for the parties in their disputes. But this again, though vastly better than our present water of lawsuits, leaves the door open for a long and costly hearing appointed by the Institute. The arbitrator appointed by the Institute. On great aim of all who are interested in building should be to get rid of all this waste and worry. The architect of the job knows, or should know, and would have to know, all about the job, and that knowledge he could, and must, use in his position as arbitrator when deciding disputes and giving his final award. He would become judge and jury in the matter, and his finding could only be upset where it was shown to the High Court that he had, in effect, misdirected himself upon some point of law, as ordinary judges are often held to have done or upon his own fraud or collusion.

In the present position of the authorities, and upon the basis of the complicated contracts generally used nowadays, no lawyer would care to give a clear opinion as to the ultimate result of any proposed litigation. It is quite useless for us to go through the decided cases over again. Their apparent contradiction is often explainable by going into the facts involved and the form of contract used. But we take it that the broad effect of the recent judgments in the Courts of Appeal is that any architect supervising and certifying upon a building becomes a legally an arbitrator throughout, although that word may nowhere be employed. If this is so, it seems to follow that the only safe and sane plan he can adopt is to accept that position and act up to it, openly and avowedly, as between his client and himself and outside parties. He must also still remain the agent of the building owner. But as regards all disputes between the owner and the builder, he would become sole judge. In this way there should be a finality really final. All three parties to the triangular contract would be legally bound by its clauses. The law allows them to create, or select their own tribunal for the settlement of all differences, subject only to those larger questions of law and jurisdiction which no arbitration can always and entirely avoid. The subject is one of much difficulty and delicacy. Various vested interests may be involved. With questions of that kind we are not concerned in these columns. Our only desire is to suggest some method by which architects, owners, and builders may be able to work together in peace and prosperity, without doubt or discussion, and clear of the law's uncertainty and the law's delay.

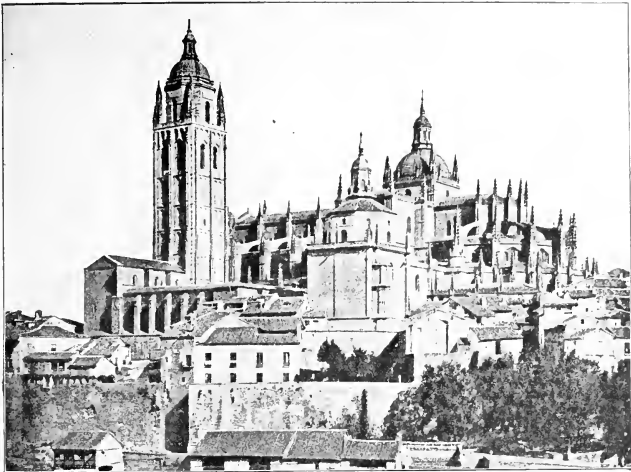
CATHEDRALS OF SPAIN.*

[WITH ILLUSTRATIONS.]

To readers whose interest in the great Spanish cathedrals is reawakened by the reproduction of Mr. Henry C. Brewer's very interesting water-colour drawing of Segovia, which, with his kindly consent, we are enabled to offer to-day, we can recommend Mr. Gade's appreciative record. There is indeed no lack of English books of the same kind. Street's *magnum opus* of forty years since is "Gothic Architecture in Spain," of course, still remains the most complete of all, in scope, inspired, moreover, by a fellow feeling that is scarcely extinct to-day. Among others, Charles Herbert Moore and Sir Matthew Digby Wyatt brought pen and pencil to bear lovingly on the art of the people whose history has been so strange—a community of grandeur and decadence. Possibly of all her admirers J. B. Waring was one of the most modest and intelligent. Mr. Gade does not seem to have been aware of his existence, and yet we venture the opinion that none knew Spain better. An occasional but always welcome contributor to our own pages in the twenties, we need to miss him a month, and the answer in response to the inquiry following his reappearance, "Well, where have you been this time?" would be "Oh! to Burgos." And then came the simple story of months of quiet residence with and amongst the people he cared for so well, followed by a modest volume embodying his experiences and his tribute to the wonderful genius that created the monuments that stand to-day in barren deserts, on parched and lonely plains, and amid howls crumbing into ruins, nevertheless, as we believe, and as Mr. Gade

*Cathedrals of Spain, by JOHN ALAN GADE. London: Constable and Co., Ltd., 15s. net.

*See "A Record of my Artistic Life," by J. B. Waring. BUILDING NEWS, p. 501, Nov. 29, 1873.



SEGOVIA CATHEDRAL.

believes, guarantees of a renaissance of all that constitutes the true greatness of a nation when the Spanish people have learned the lessons of real progress.

Certainly, as Mr. Gade contends, no proper study of buildings like these can be made apart from their surroundings and past history. Even here in England, where the cathedrals were built round by the clergy, and shut off from the rest of the world by high walls, they have their occasional vivid connection with our national history, if not with the daily civil life of its people. In France they were essentially the centres of all the interests of the masses, and belonged more to the people than to the clergy. As Mr. Gade reminds us, Notre Dame d'Amiens, for example, was the church of a commune, what Walter Pater calls "a people's church." But all were civil rather than ecclesiastical growths, and essentially the glories of the City and the laymen. But in Spain the cathedrals were both—municipal and ecclesiastical. Of bloody strife or peaceful union the city was the body, the cathedral its animating soul. Not for prayer alone, but to live in. They were the feast places, the halls of conclave, the theatres in which the mystical sacred plays were presented, the art galleries, the christening, crowning, and burial places of kings, and their walls echoed with the first murmurs of the masses, voicing the discontent that no answering statesmanship seems to have had the genius to shape into betterment.

So that one welcomes unreservedly the combination with his architectural description of Mr. Gade's historical reminiscences. It is true he limits both to eight of the cathedrals—only a third of their total number, and that so far the series, as he admits, is incomplete. The book doubtless would have grown too bulky had it included them; but we could well have endured that had it included Santiago da Compostella, with its world-famous portal; and Barcelona, or Gerona, Lerida, or Tudela. Still, of the eight he has selected, each abundantly justifies its inclusion as a type. Salamanca, with its new 16th-

century Gothic cathedral, with its Later Renaissance additions built on to and dwarfing the old 12th-century Romanesque structure with its later Byzantine and French Gothic elements. Nowhere else in Spain, and seldom outside her borders, can one take in the development of successive styles as at Salamanca, with her ineffaceable memories of discord between Moslem bands and the early Castilian knights—Crescent and Cross constantly supplanting each other on her turrets. Avila, where the ochre walls and bastions girdle the little city, with their eighty-six towers, and ten gateways which pierce the walls, and its cathedral, an embodiment in architecture of the church militant, if ever there was one—a huge grey bastion, crowned at all points by battlements and galleries for sentinels and fighting-men. Burgos, and Leon, and Toledo, all mainly Early Northern Gothic, but with their late additions unmistakably of the Plateresque and Churrigueresque styles. Seville bearing obvious witness to the union of East and West with its Moorish giralds towering above the huge pile, mostly Gothic within and Renaissance without. Granada, with its tombs of Ferdinand and Isabella and Philip and Joan, but least interesting of all as far as the cathedral goes, marking as it does the advent of stagnant uninspired formalism in constructive forms.

Of the two Late Gothic cathedrals, Segovia is greatly the superior not only in the splendid development of the Eastern end, with its semicircular apse, ambulatory, and radiating apsidal chapels, but throughout in the restrained quality of its detail and the refinement of its ornamentation. Begun in 1522 by Juan Gil de Hontano, who had already worked on the old cathedral, but had won his great fame on the new cathedral of Salamanca ten years before, it was practically completed by his son Rodrigo, aided by Cubillas, Juan Gil's old clerk of works. Rodrigo died in 1557, and the church was consecrated in 1560. Chapels were added by Rodrigo's successor, Martin Ruiz de Chantudi. The lantern above the crossing was raised by Juan de Mogauren in 1615. Five years later the

northern porch was erected, and Renaissance features invaded the edifice. Like most Spanish churches, it has been constantly worked upon, and never completed. The plan is good. The situation is magnificently impressive. The former Romanesque cathedral, consecrated in 1228, had perished by fire in the revolt of the Comunidades in 1520.

In the centre of the city, on the very crest of the hill, lay the only clearing within the walls. Here, at one end of the plaza, was the site of the convent mentioned by Emperor Charles, which had long sheltered the nuns of Santa Clara. They had abandoned it for other quarters, and the adjacent convent of San Miguel had become unpopular and was dwindling into insignificance. Both could thus in this most free and commanding location, give way to a new and larger cathedral, distant from what would always prove the rallying point of civic strife. Following the mighty wave of revolt which had swept the city came a great receding wave of religious enthusiasm to atone in holy fervour for the impious act recently committed. Citizen and noble alike proposed to build an edifice which would be much more to the glory of Saint Mary than the shrine which they had so recently pulled down. Lords gave whole villages—women, their jewels, and the citizens, the sweat of their brows. We find in the archives of the cathedral the following entry by the Canon Juan Rodriguez:

"On June 8, 1522. By the order and resolution of the Lord Bishop D. Diego de Rovera and of the Dean and Chapter of the said church, it was agreed to commence the new work of the said church to the glory of God and in honour of the Virgin Mary and the glorious San Francisco and all saints, taking the master of the said work Juan Gil de Hontano, and for his clerk of the works, Garcia de Cubillas. Thursday, the 8th of June, 1522. The Bishop ordered a general procession, with the Dean and Chapter, clergy, and all the citizens' orders."

The view we give from Mr. Gade's book, by the courtesy of the publishers, if it lacks the interest of Mr. Brewster's picture illustration, conveys, perhaps, in its clarity the architectural effect of the exterior.

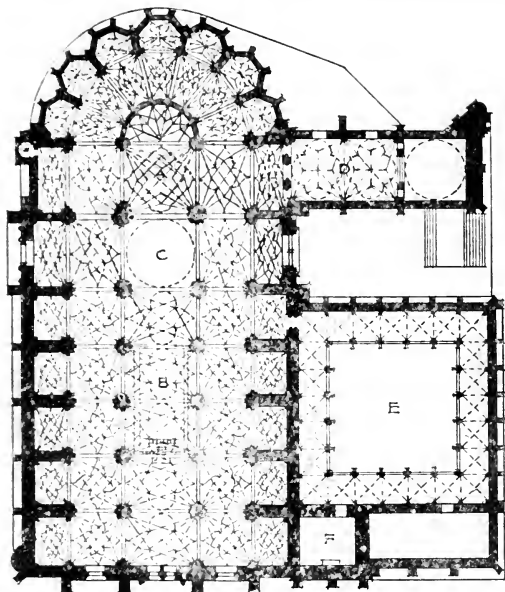
Taken as a whole, the *Salamanca Cathedral* is a work of charm. It is neither a masterpiece nor a failure, of a certain strength, but a work of interest or merit. It is largely a study of the five pronounced buttresses, marking the main side aisles, and outer row of chapels. The relative heights and the lines of these buttresses

to the north, a rather small, white, octagonal tower, three hundred and fifty feet above the whole mountain or mass of the Segovia landmark in the landscape of Segovia. It consists of a square base and is thirty-five feet wide, broken by six rows of two arches. The first, the third, and the sixth are open; the last is a belfry. The top of the tower curves from an octagonal Renaissance base, the transitional corners being filled with crocheted pyramids similar to the many crowning buttresses and piers at all angles of the tower, below. The dome and lantern are given a character by counterparts of these crowning buttresses. They were put up by

ambulatory, apse, transeps, and lanterns, each level crowned by its sparkling balustrade. The sky is jagged by the crocheted spires which terminate the flying buttresses, the piers, and the angles of the wall surface. Here the Latin cross may be seen, and the subdivisions of every portion of the interior. There is no deception nor trickery. It is simple and straightforward. Its artistic merits may be small, the forest of carved turrets rising all around the apse, tiresome; but this final impression of Spanish Gothic was thoroughly sincere.

No less than 38 excellent illustrations are given by Mr. Gale, and his book throughout is in every way a solid and sym-

metrical contribution to the bibliography of the art of the Peninsula which has had few interpreters recently rising above the limitations of the guide-book, or the "impressions" of the magazine artist. We should be glad to welcome at his hands a further instalment of the same sort in another volume, in which the remaining cathedrals, or some of them, might be similarly described and illustrated.



PLAN OF SEGOVIA CATHEDRAL.

This book is a handsome volume, with extremely good illustrations, and with artistic and scholarly text. It is a book which has been long wanted by the architectural community. The Segovia Cathedral is a masterpiece of the Spanish Gothic style, and the book is a valuable contribution to the literature of the subject. The illustrations are of high quality, and the text is well written and informative.

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THE HOUSE AND ITS EQUIPMENT.

[WITH ILLUSTRATIONS.]

This abundantly varied assemblage of books, which has recently been issued from the Press, in illustration of domestic house-holding, is a most significant and important volume. It is a book which has been long wanted by the architectural community. The Segovia Cathedral is a masterpiece of the Spanish Gothic style, and the book is a valuable contribution to the literature of the subject.

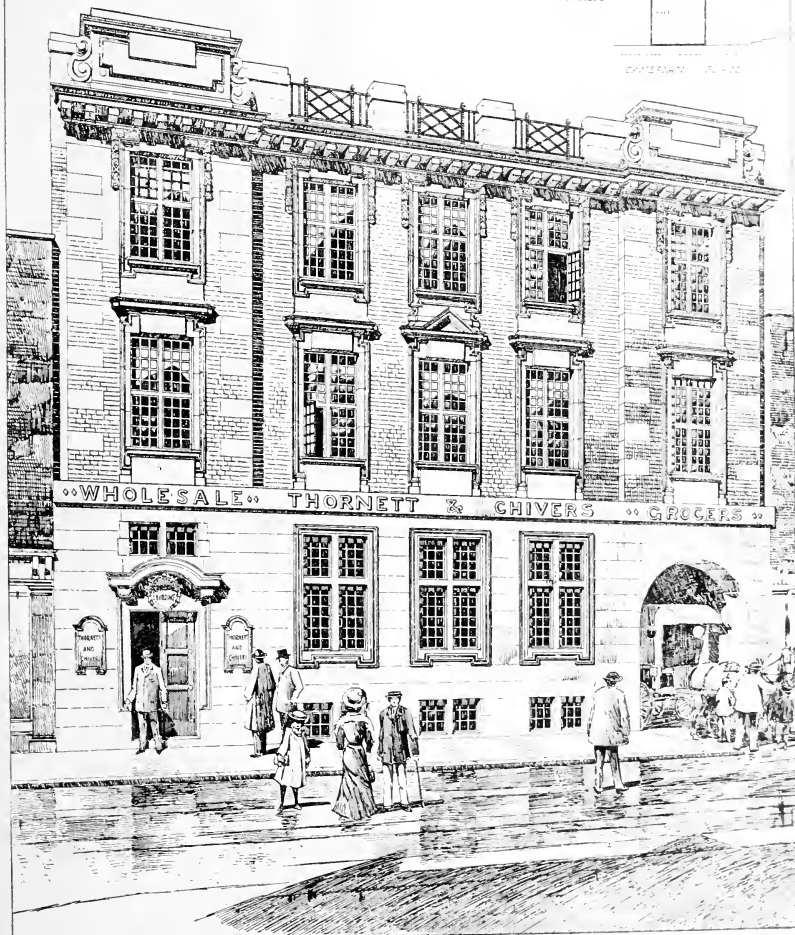


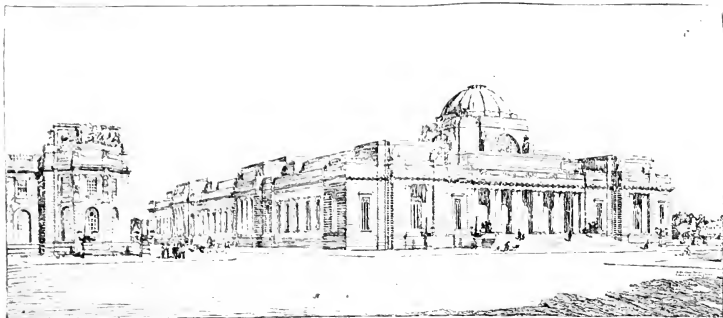
A LIBRARY VIEW.

will save the intending owner the cost of an architect, and so checkmate the professional man's fees. Of course, experience at once demonstrates the fallacy of any such presumptions, and the actuality of contingent expenditures speedily enough demonstrates the un-wisdom of such a view of the matter, most likely when it is too late and the mischief has been done. Though not personally a professional architect, Mr. Lawrence Weaver has in the present work accumulated much varied information, and by compiling a vast number of illustrations of old and modern domestic architecture, mostly represented by specially taken photographs, judiciously chosen, has presented the public with a high-class production. His informing and useful small folio, under the title of "The House and Its Equipment," is the first volume in the "Country Life" series, or "Library of Architecture." The opening chapter on "Domestic Architecture of To-Day" is from the pen of Mr. Ernest Scott, A.R.A. He assures us unflinchingly that it is a little bit worrying, and neither cost nor profitable attempt to guess the future. He takes no consideration, while the speculating builder devastates whole districts, his only ideal being to provide the most apparent accommodation for the latest actual case, that the conscientious architect is striving after perfection, developing the art of design by doing nothing little for the craft of building. Mr. Henry Ricardo discusses in "The Colour of the House," in relation to the sense of the colour sense, now

NEW WAREHOUSE IN CAMBRIAN PLACE FOR
MESSRS THORNETT & CHIVERSMess^{rs} C S THOMAS MEAGER & JONES
ARCHITECTS*Block
Plan.*

CAMBRIAN PLACE





NATIONAL MUSEUM OF WALES (View from S.W.)—Messrs. SMITH and BREWER, Architects.

THE CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS.

The forty-fifth annual convention of the American Institute of Architects was held on December 12, 13, and 14, at Washington, D.C. Mr. Irving P. Pond presiding. More than one hundred delegates, representing the various Chapters, attended. In his presidential address the president briefly reviewed the year's work.

Declaring that opportunities for the conservation of natural resources exist in the National Capital fully as great as in other sections, the chairman, Mr. Cass Gilbert, in presenting the report of his committee, urged that the banks of the Potomac River should be preserved undisturbed as memorials to the early days of American national life.

The committee held that all the historic estates that do not already belong to the Government should be speedily purchased, even if they are not to be utilised for park purposes in centuries to come.

In presenting the report of the Committee on Education, Mr. Cram discussed the subject of State licensing as compared with Institute licensing for architects. He urged that Institute membership should be accepted by all licensing boards as satisfactory evidence of fitness to practise, as is now done in New Jersey and Colorado. The committee believed that there should be a broadening of the object of the licensing act, so that his work may be allowed to cover touch with the architect.

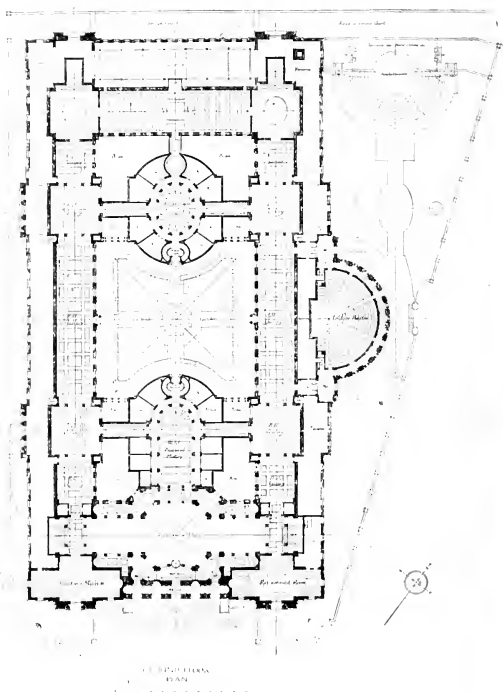
Upon receiving this report the Committee on Education held a conference in the evening, participated in by delegates from the Chapters. The object of this conference was to discuss the action which might be found desirable to advance the educational interests of the members.

The report of the Board of Directors showed a very gratifying increase in membership. It also urged the Park Commission site for the Lincoln Memorial, and regarded as unique to the best interests of Washington the scheme to erect a statue in round in clay for the monument. A large part of the report was devoted to town planning, and much emphasis was laid on the prominent part to be played by the architectural practice in the future. Under the head of urban landscape practice, this report made public the names of members of the Institute whose valuations of the work of English landscape architects had been published in the press.

The report of the Standing Committee on Legislation, presented by Mr. Frank Miles Day, the member at large, full and clear expression of the committee's views.

Mr. Arnold W. Benson, of New York, in presenting the report of the Committee on Town Planning, gave a far-reaching review of the developments of town planning in the United States. He referred to the fact that Senator McMillan, on the nomination of the Institute, supported the Park Commission for the National Capital, which work

AMGUEDDFA GENEDLAETHOL CYMRU

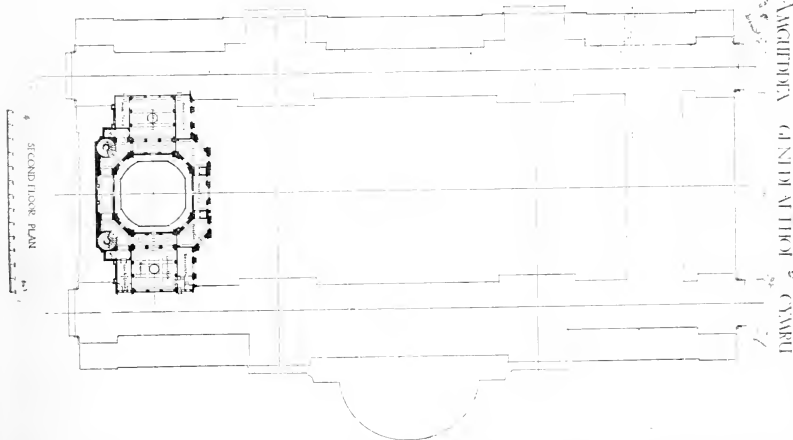
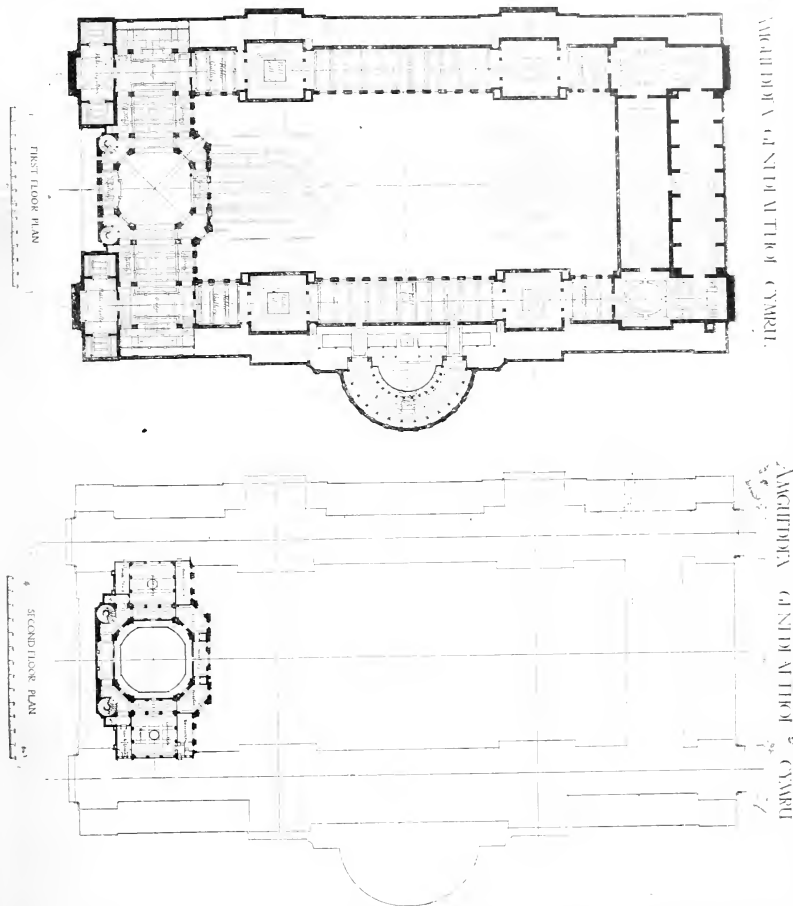


has received such wide recognition that it has established the importance of the trained judgment of the architectural profession in any scheme for city improvement. The committee presented a recommendation that an effort be made to obtain either State or National laws to effectively carry out judicious systems of town planning.

Mr. H. A. Gardner, Assistant Director of the Institute of Industrial Research, read

a paper on "Recent Developments in Paint Technology." Mr. C. C. Zantinger addressed the convention on "City Improvement," and Mr. J. Milton Dyer, in an address on the subject of "Effect of Competition on Design," paid a high tribute to the increasing architectural excellence of Government buildings.

A feature of the opening session was the presentation to the Institute of the table upon



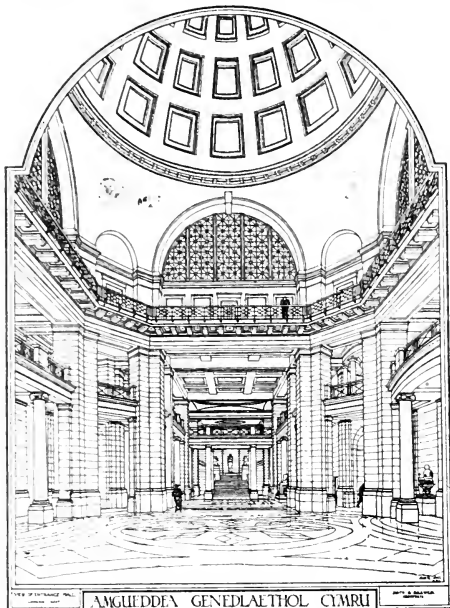
THE NATIONAL MUSEUM OF WALES.
CARDIFF.

As will be seen by comparing the perspective view with that given by us in our issue of April 1, 1910, the south front of this building has been, in a measure, redesigned, the chief alterations being the increase in the height of the dome to 96ft., whilst the columns at the main entrance and the corner pavilions have undergone some change. The interior arrangements have also been revised, and careful consideration, and the chief alterations have been the placing of that originally submitted to the public, and the raising of the height of the entrance-hall by carrying the whole of it up two floors, the central portion, under the dome, being still higher—namely, 88ft. This has necessitated the provision of a second floor at the south end of the main hall, to contain the committee room, the library, and offices, and of a new staircase to the second floor of the entrance hall. This arrangement has the advantage of allowing complete circulation of the visitors on the first floor as

well as on the ground floor. The department for Welsh natural history has also been designed, and it is considered that it will be much better suited to its purpose than the form now adopted. A perspective view of the entrance-hall is given.

The positions of the houses have been altered, and it is now proposed to place these clear of the building on the north-east corner of the site. A new air amphitheatre has been planned for the higher house for the summer months, for dances, folk-songs, etc.

[illegible]



tion by the council, building committee, and Messrs. Smith and Brewer, the architects, who are sparing no trouble in securing the best possible design, and it is considered that the plan now adopted will prove in every way satisfactory. The plans are reproduced herewith.

Tenders were in due course invited for the carrying out of this work, the following being received and considered on July 21, 1911:—

Arlis, Ltd., London	£40,079 18 7
Tucker Bros., Cardiff	38,850 0 0
Knox and Wells, Cardiff	35,150 0 0
Building Construction Co., Ltd., London	31,900 0 0
Blake, W. E., Ltd., Plymouth	24,850 0 0
Minter, F. G., London	34,825 0 0
McLaughlin and Harvey, Ltd., London	34,850 0 0
Allen, J., Ltd., Cardiff	37,734 10 10
Wilcock, H., and Co., Wolverhampton	31,750 0 0
Turner, E., and Sons, Cardiff	31,093 0 0

That of Messrs. E. Turner and Sons was accepted by the council, and work commenced on the site on September 1, 1911.

The fourth Annual Report by the Council to the Court of Governors, from which we are kindly permitted to reproduce the illustrations given, is a continued record of notable progress towards the fulfilment of the purposes of the museum, of which Cardiff and the Principality will have good reason to be proud, thanks in no small measure to the able administration of Mr. Williams Evans-Boyle, M.A., D.Sc., the Director.

GRANTS FOR ROAD MAINTENANCE.

The Road Board have re-constituted the County Councils of England and Wales with reference to applications for advances towards works to be carried out during the next financial year, and have communicated to them a minute of the Board with reference to road crust improvements.

The purpose of the Minute is to set forth generally the practice which the Board pro-

pose to follow in making grants to county councils and other highway authorities in respect of such improvements of existing roads as consist of works designed to strengthen and improve the road crusts.

The Development and Road Improvement Funds Act, 1909, expressly excludes from the category of improvements all works which fall within the description of "ordinary repairs essential to placing a road in a proper state of repair."

The maintenance or repair of any road must necessarily involve the recasting or renewal from time to time as required of the wearing surface or surface crust which is worn away by the effect either of traffic or of weather and natural deterioration or decay. It is necessary therefore to draw a distinction between works which consist of (1) Strengthening or thickening the sub-crust or foundations, both of which may be included in the term, "strength crust," or carrying out other works designed to permanently strengthen the road; (2) Substituting better or more durable material for inferior material previously used in renewals of the strength crust or the surface crust. (3) Tying down and steam rolling a wearing surface or surface crust in renewal of a damaged or worn out surface crust.

In making contributions to road-crust improvement work, the Board deem it necessary to confine grants to some proportion (75 per cent. is the proportion usually given) of the extra cost of improvement, after provision out of maintenance account of the cost of renewal, with proper materials, of the surface crust which requires renewal.

In the case of roads which have to carry any substantial volume of modern traffic the practice of carrying out periodical renewals with inferior material, such as gravel, flints, or soft limestone, although such material may be comparatively cheap in first cost, and binding with mud, is probably wasteful and results in the total cost of periodical

renewals of surface crusts, spread over a term of years, being greater than it would be if, in effecting renewals, superior stone or other good surfacing material, treated with some kind of bituminous material for binding or for surface protection were used. The Board are therefore desirous of assisting not only the strengthening of sub-crusts and foundations, but also the improvement of surface crusts by the use of superior surfacing material, and by the substitution of bituminous-bound for water-bound material.

It has now been so fully established that bituminous binding will substantially increase the life of wearing surfaces, that in future, in dealing with surface-crust improvements, the Board intend to take into consideration the effect of the improvement in reducing the cost of future periodical renewals, which are properly chargeable to maintenance account.

The effect of this will be in some cases to reduce the proportion of the extra cost for which grants can be made, or to render it necessary to introduce into some grants a condition that, in the event of the extra cost of the improved surface crust being in fact wholly or partially recouped by the extra life of the surface crust, the highway authority will spend upon other permanent road improvements in their district an amount equivalent to the grant made by the Board.

The Board will continue to make grants and loans to road-crust improvements on applications for such grants or loans being made by county councils and other highway authorities. They will also continue to make contributions to the cost of surface tarring in cases where such treatment is suitable; but such contributions, except in cases where the grant is in continuation of a grant already made, for a first application of surface tarring will not, except under special circumstances, exceed from 50 to 75 per cent. of the cost.

General directions for surfacing an existing road with steam-rolled water-bound macadam have been prepared by the Advisory Engineering Committee, and have been issued under the authority of the Board by Messrs. Waterlow and Sons (Limited), London-wall, London, E.C., from whom they may be obtained, price 6d., post free.

During the month of October, November, and December, 1911, the Road Board, with the approval of the Treasury, have made advances amounting to £33,787 from the Road Improvement Fund to county councils and other highway authorities as follows: For the improvement of road crusts (including grants towards tar, macadam, etc.), and surface tarring, £29,045; for road widenings and improvement of curves and corners, £4,223; for road diversions, £519.

The total grants up to December 31 are as follows: For the improvement of road crusts, £317,407; for road widenings and improvement of curves and corners, £50,436; for road diversions, £17,094; for construction and improvement of bridges, £13,897. Advances by way of loans have also been made to the sum of £8,174.

In addition, grants amounting in the aggregate to £490,413 have been allocated to highway authorities towards works of improvement of which the details are still under consideration and discussion.

A training college for teachers is about to be built at Caerleon from plans by Messrs. Alfred Swash and Son, of Newport, Mon. The outlay will be about £26,000 exclusive of site and furnishing, and the contractor is Mr. F. Bond, of Cardiff.

A new sewerage scheme for Eglestham, Renfrewshire, has just been completed at a cost of £22,000, and has been formally opened. The works were designed by Mr. J. Bennett, Paisley, and constructed by Messrs. Wilson, Kinnmond, and Marr, contractors, Glasgow.

Early in the New Year the additions which have been made to the Royal Military College at Sandhurst will be ready for occupation. They have taken about two years to complete, and have cost nearly £250,000. They consist of two wings for the accommodation of six companies of cadets.

CURRENTE CALAMO.

In his lecture to the Institute of Builders, Mr. A. W. Gattie well emphasised some of the scandals of present railway administration to which we referred on this page in our issue of December 15 last. Wasteful railway management is, as the lecturer said, to be blamed for the present high railway rates. Who can wonder, when we have 1,300 railway directors who absorb £650,000 annually? On the board of one of our railways the age of six directors averages 77; another list of six gives the average age of over 88. Transport rates in this country are the highest in the world, and in many cases for parallel services are double the German rates. Our railway goods yards are a jumble. There are seventy-four of them in London, and in order that they may communicate with one another there are 700 trains run daily. If a central goods clearing-house were established in London, then 700 trains and seventy-four goods yards could be dispensed with, and the work would then be done five hundred times quicker than at present. There would be no need of at least two-thirds of the present number of waggons.

Comparing the cost of the present methods with his suggested system for a London goods clearing-house, the lecturer took as an example a load of 100,000 glazed bricks, weighing 345 tons, to be conveyed from Yorkshire to London, a distance of 200 miles, in fifty truck-loads, having a gross weight of 690 tons. The present charge was 11s. 8d. a ton, or £201 5s., or, including loading, unloading, and delivery charges, a total of £257. If this load were sent in seven large truck-loads the loaded weight of the trucks would be 531 tons only, which, with an increase of speed of the train, would enable a saving of £87 15s. 10d. to be effected in haulage, while the train would be able to proceed into the clearing-house intact, thus obviating the necessity of splitting it up in a shunting yard. The lecturer presented figures which tended to show that the total cost of bringing the bricks from Yorkshire to within two miles of the clearing-house was £142 9s. 4d., or a saving of £114 10s., equal to 45 per cent.

Our railway goods stations, moreover, are, as Mr. Gattie said, designed and built in a fashion which is simply ludicrous, and excites the derision of every American visitor. They are furnished with a jumble of sheds dotted over them from one end to the other, and they are too unwieldy and scattered to allow intercommunication of parts. The creation of a London goods clearing-house, of which the various parts would be in immediate electric intercommunication with each other, to take the place of the seventy-four goods stations in London, from which any parcel, bale, or load could be taken from any spot and conveyed to any other part of the building, in some instances in a few seconds and in others in a few minutes, would doubtless further despatch; but we doubt whether the railway companies would let the public share the saving effected. Nothing will really wake up the venerable gentlemen who take their £650,000 a year for knowing "how not to do it," but railway nationalisation.

The Royal Academy Winter Exhibition is too large, and embraces too many of the traditional works, which, however they may be

valued by their owners, have little interest either for the connoisseur or the intelligent layman. The descriptive list which the Academy issues as a "catalogue," of course, warns the public that the attribution of the authorship of the pictures is entirely that of the lenders. One of these days, perhaps, it may occur to the authorities at Burlington House that a real catalogue embodying the opinions of trusted experts would be of lasting interest. Moreover, it would help, probably, to exclude rubbish from subsequent exhibitions. On the other hand, the better hanging of the pictures this year deserves recognition.

The devotion of three whole galleries to the works of the late Mr. E. A. Abbey seems rather a mark of gratitude for value received than the result of any real belief that their interest can possibly be long-lived. Of the scores and scores of drawings—most of them of the sort that might well decorate the room of a successful theatre manager whose revivals of Shakespeare they had helped—there is scarcely one that arrests intelligent admiration or repays study. Nor, truth to tell, do the pictures—clever enough, some of them, after a fashion. Who, for instance, can possibly regard "Columbus in the New World" (337) seriously? And why, one wonders, was the capacity manifested, within certain limits, for better things, as in "Richard and Lady Anne" (466), sacrificed to staid unreality so frequently?

The appropriation of the first room to the works of Reynolds, the Academy's first President, will displease nobody. It is the most satisfying and suggestive contribution to the show. Not only are there some of the best-known, but some of the least familiar examples, except as far as our knowledge of them is derived from engravings. There are eight of the allegorical subjects Reynolds did for the New College window at Oxford, his own portrait which he gave the Academy, and thirteen other portraits, those of the Brummel boys, lent by Lord Iveagh, being the most delightful, as they will probably prove most attractive.

The second room is a much more mixed collection. There is one really rare work, Giovanni Bellini's "St. Francis" (41), which we have not seen for more than fifty years—the last time, we think, at Manchester. Of all the Italian examples on view, it is beyond doubt the finest. The five Rembrandts—we suppose "The Holy Family" (50) is a Rembrandt!—will attract, and so, we suppose, will his "Portrait of a Cavalier" (81) in the Watercolour Room, and Rubens's "Henry Wriothesley, Earl of Southampton" (88). The best thing in the Third Gallery is Gainsborough's "Hon. Edward Bonville" (94). Rubens's "Holy Family," owned by the Duke of Devonshire, has the place of honour at one end of the room. The three small Turners (89, 117, and 127) are not very striking. Among the Hogarths, in Gallery IV., which are genuine—and some surely are not—are three fine ones lent by Colonel Noel (114, 151, and 152), all practically unknown. The two splendid Caravaggios in this room are fine examples.

Among the pictures that simply waste space one really wonders why such things are hung as the "Fortune," by Marcello Venusti,

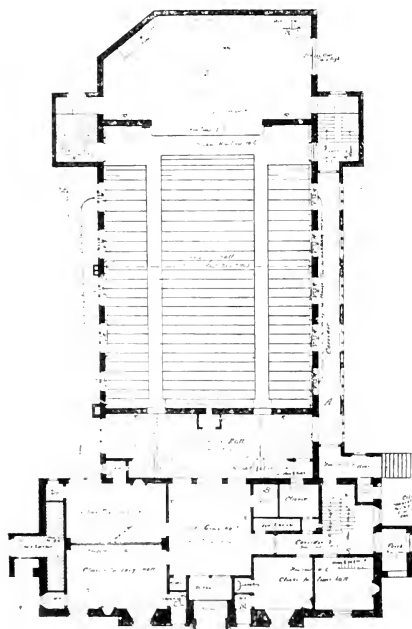
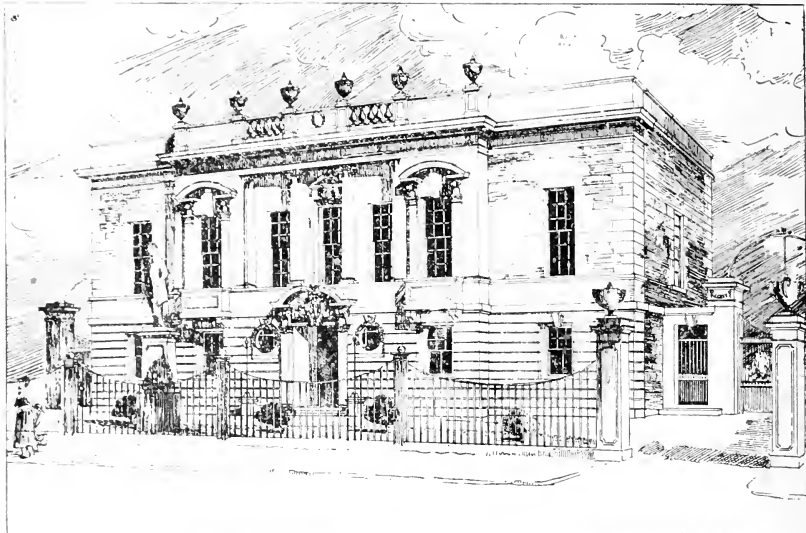
or "The Woman Taken in Adultery," by Bonifazio, and "The Centurion on the Cross of Christ," by Paris Bordone, or the two allegorical subjects ascribed to Tintoretto, bad alike in composition, handling, and draughtsmanship, and lifeless and featureless in colour. Or the large group by Lely, "James, Duke of York, afterwards King James II., with his Wife and Daughters," except as an illustration of the practice of a painter who was not always incapable. Nor are these by any means all the instances of inability of the Academy to choose work worth exhibiting.

The consent of the Chancellor of the Diocese of Llandaff on Tuesday to the immurement of the cremated ashes of the late Mr. A. J. Williams, formerly M.P. for South Glamorgan, in the north wall of Cychurch parish church, seems to us very justifiable. Of course, care should always be taken, as in the case of "Inne v. Gray" (1894), that church walls shall not be weakened. In that instance the Chancellor directed the remains to be interred in the floor. At present, and while a faculty has to be obtained in every case, such decorous disposal of the dead seems likely to remain the luxury of the well-to-do. Some day, we hope, it will be the right of all, and that the hideous cemeteries and the travesties of the cemetery mason will disappear, and the remains of the departed may once more rest in the custody of the guardians of the common faith, revered by, and innocuous to, the living.

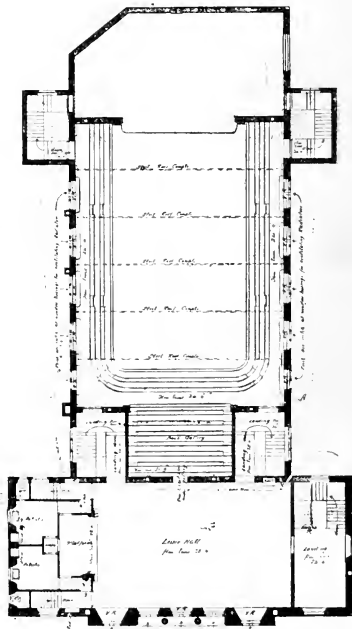
Mr. Edison proposes to make concrete furniture. He declares that it could be done at less than half the price of wood. The surface can be polished and stained to look like any kind of wood! Mr. Edison is using a concrete cabinet for his phonographs, and the surface is said to be like enamelled wood, coloured white and gold. The greater weight is admitted; but, according to Mr. Edison, it would only be one-third greater than that of wood, and he says that he can reduce this to one-fourth. Probably; but we confess the hospitality of a man who asked us to stretch our legs under his concrete dining-table would hardly cement our friendship!

A much more sensible and really most useful adaptation of ferro-concrete is that described by Mr. W. J. Bremner Davis in last Friday's *Engineering*. It is curious, as he suggests, that the method of calibration, in combination with pinhole images and a series of parallel lines on a flat surface, does not appear to have been applied to sundials. To facilitate this, Mr. Bremner Davis has devised a dial which he names the "B.D. Time-Box," which is not patented, neither is it made for sale. But it can be made in ferro-concrete by an amateur for a few shillings, and it will prove so useful that we have taken the liberty to reproduce it in our other paper, the *English Mechanic*, which is probably read by fifty times as many astronomers and astronomical students and amateurs as ever see any other journal of its class.

At Bascano, in Alberta, a town which owes its existence to the C.P.R. and a wide awake publicity agent, they have adopted a "slogan" with which to carry on an active advertising campaign. If at first blush the slogan may seem to verge on the profane,



First Floor Plan.



Gallery & Lower Hall Floor Plan.

two sections, of which the upper (C) serves as a reservoir for the stone which is charged from the elevated platform in the direction indicated by the arrow, either by hand or by automatic trolleys, according to the scale of the works. The waste heat (thus given off by the combustion going on in the lower chamber (B) is mostly retained by the stone in the upper chamber (C), and the gases thus utilized. The lower chamber (B) is lined with firebricks, the stone resting on the grate (D), fitted with a movable door, by means of which the calced lime-stone is withdrawn. This Aila is best adapted to work a hard stone owing to the removal of the stones continually downwards. Figs. 2 and

FIG. 2.

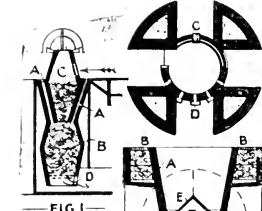


FIG. 3.

3 show respectively a plan and section of one more up-to-date continuous kiln, which may be coal or gas (producer) fired. It is built in four quadrants, with a diameter of 40 ft., and is 20 ft. in height, the quadrants being filled in with broken brick, etc. The outer walls are 20 in. thick, and the firebrick lining (A) forming the pan, 9 in., the back lining (B) of old bricks, 9 in. thick. The quadrants rest on four 9 in. pillars (C), 3 ft. in height. The pan (D) is 9 in. wide and 14 in. high, with an upward inclination, while (E) is the profile, and (F) the combustion chamber. London, 52, Ivanhoe-road, Drarnark Park, London.

Mr. Adolf Paul Oppé has been appointed Senior Keeper in the Victoria and Albert Museum.

Mr. W. B. M'Losky, engineer and gas manager, Perth, has been appointed gas manager for the corporation of Halifax.

At the Borough Council House on East Hill, Wandsworth, on Tuesday, Mr. A. A. G. Mallet, a Local Government Board inspector, held an inquiry as to an application of the Wandsworth Borough Council for sanction to borrow £10,500 for the purchase of 30 acres of land in Kingston-road, Putney Vale, as an addition to Putney Vale Cemetery. The price proposed to be paid is £350 per acre.

H.M. Office of Works has stated that it has no objection to the proposal to erect the memorial statue of Florence Nightingale near the Crimean memorial in Waterloo-place. It has been suggested that the memorial shall be placed the statue in view in the foreground of the War Office of Lord Herbert of Lea, who was Secretary for War during the Crimean War, and who sent Miss Nightingale out.

Under the presidency of the Lord Mayor of Bristol, a large gathering of citizens assembled at the Council House of the City of Bristol, when a presentation was made to Colonel Thomas Henry Yaldron, M.Inst.C.E., for the services he has rendered as city engineer and be a servant of the corporation for fifty years. The presentation took the form of an illuminated address and two silver candelabra and a silver fruit and flower bowl.

Plans have been adopted by the Northamptonshire County Council, and the urban and rural district councils of Oundle for widening at an estimated outlay of £2,000, Oundle North Bridge, which is on the main road from Wellingborough to Peterborough and crosses the River Nene near Oundle Station on the London and North-Western Railway. The existing bridge, which unites the urban and rural areas of Oundle, is 370 ft. long, and consists of the stone bridge crossing the Nene, and a new bridge at the mill at the west end (two arches) and six flood arches. It was built in 1571 and varies in width between the parapets from 15 ft. 6 in. to 20 ft. It is to be widened on the south side to a uniform width of 20 ft. The contractor is Mr. O. P. Dwyer, of Kettering, whose tender has been accepted at £7,953 10s. The engineer is Mr. S. S. Morris, of Northampton, the county surveyor.

WATER SUPPLY AND SANITARY MATTERS.

KINGSLASSE WATER SUPPLY. A correspondent writes, The recent addition to the water supply of Kinglisse village, Fifehire, has been much criticised locally. The Local Government Board was appealed to to look into the matter. The Board thereupon required a medical officer for Fife to inquire into it and report. Dr. Currie, the medical officer of health.

"I visited the village and interviewed parties on November 3, 8, and 22. Kinglisse waterworks are so arranged as to divert and run off, by two lines of collecting pipes, a series of water-bearing areas in hill pasture to the north of the village. Both are laid with partially open joints, excepting on the high line near a farmstead, where the joints are sealed, for the purpose of the open joints is to take in subsoil water."

"I am prepared to believe that rain after dry weather is apt to carry colouring substances into the water. This may take place in any supply which is not stored in a reservoir. It does not occur at Kinglisse with every shower, and the point is whether it occurs so frequently that steps should be taken to deal with it. To solve this question, observations should be made over a sufficient period. A resident in the village is prepared to make daily tests in a suitable manner."

"A sample of water taken in my presence by Inspector Mackenzie has been submitted to chemical and bacteriological examination. The analytical report follows: 'Dundee, November, 1911.—Sample taken . . . during wet weather. 100,000 parts of this water yields free ammonia, .0006; albumin ammonia, .0038; carbonate of lime, etc., 18.540; chlorine, 3.3; nitrate, as nitrates, none; nitrites, none; hardness in Clark's degrees, 13deg.; lead or other poisonous metals, none. The yields of free and albumin ammonia are low, indicating a high degree of organic purity. The absence of nitrates indicates freedom from previous sewage contamination. Saline matter is moderately high, leaving the water a fair quality for washing purposes. The bacteriological examination does not give rise to the suspicion of serious animal pollution. I consider this water in its present condition fit for drinking and general domestic purposes.'—(Signed) G. D. Macdonald, F.I.C., county analyst for Fifehire."

Dr. Currie proceeds: "The above report scarcely requires comment. The sample was drawn at a time of rain. Despite this circumstance, unfavourable to good results, it was pronounced of high character. With the water thus obtained, the charge against the agricultural drains is lightened. These drains, as I am informed by the engineer, bridge across the open-jointed collecting-pipes, and I think that the water from the drains may enter the open-jointed pipes and may during rainfall take earthy matter with it. If this occurs to a notable extent, colour will appear in the supply, and will be revealed by the tests mentioned. If the colouring is of a permanent slight and occasional, it does not call for remedial measures. If it is frequent, marked, and persistent, it should be dealt with."

To determine the point with precision, systematic tests should be made, and the results, concluding these comments, it is proper to point out that Kinglisse people during the long drought of last summer appear to have enjoyed at all times a constant and copious supply of water. It is the habit of the community to use water as yet a year old, that it should have held good where many ambitious undertakings proved faithless."

This investigation has occurred opportunely, when Fife is faced with ambitious schemes for improving the water supply. The schemes that would entail great outlay at Kinglisse is one of the districts that was invited to join in such a scheme. Had they responded to them, they would have had to wait for four or five or six years for the water supply, and would have had to pay therefor a capital cost of about £5 per head of population supplied. Their committee in three months brought up their summer supply for 800 inhabitants to what is sufficient for 2,500 at a capital cost for works (old and recent) of £1,300 10s. per head. Nor is that all. Their works are arranged for extension, so that as the population grows, the capital cost from the beginning of only £4,000 on the present supply for 6,000 of a population is obtainable—13s. 4d. per head. The engineer for the "modest" Kinglisse scheme (Mr. David Livingstone) writes, "I have been emphatically that almost every district in Fife and many others elsewhere, requiring additional water supply, can be somewhat similarly and abundantly supplied with excellent, naturally filtered water at comparatively small outlay."

Our Office Table.

Archdeacon Taylor, the rector of St. Saviour's parish, S.E., strongly supports the appeal of Mr. Henderson Laidlaw, C.E., for opening out the site of Southwark Cathedral by the removal of the warehouses, market buildings, and other sordid surroundings which at present so closely hem in the edifice. He remarks: "The vision of a garden with trees and an embankment between the cathedral and the river, covering the site once occupied by the warehouses, markets, and a priory, and by the town house of the Bishops of Winchester adjoining, is almost too good to be true. Once this spot, seen from bridge or river, was beautiful—a stately group of buildings, of which the church alone remains, rising above the green of its field and orchard. Is it possible to make it beautiful again? I would plead for a serious discussion of the possibility of the scheme on behalf of the dwellers in the crowded 'buildings' of Southwark."

A proposal of the Guildford Town Council to demolish a number of ancient and picturesque cottages in the town for the purposes of street widening is causing widespread disapproval, and many letters of protest and suggestion are being received by the corporation from individuals, societies, and from the National Trust for Places of Historic Interest or Natural Beauty. The cottages are practically the oldest of the kind in the borough, and the town council is being appealed to to acquire modern business premises on the opposite side of the road to carry out the improvement. The local authority, however, points out, in reply, that it has no option but to make the improvement. The cottages abut on to the Farnham-road, which comprises a portion of the main road to Portsmouth, and some years ago the Surrey County Council made a large contribution to an improvement in the neighbourhood on condition that the road should be widened within a given period. The corporation is bound to carry out its part of the scheme, and unless the county council will release the corporation from its undertaking, the cottages are doomed. The acquisition of the modern premises is said to be financially impracticable. The National Trust describe the cottages as a "picturesque bit of old Surrey and old England."

A joyous party of aged citizens and their wives, and the widows of departed citizens, attended at the Luckie Horseshoe Studios at Exeter on Christmas Day. For the forty-third successive occasion, Mr. Harry Hems invited sixty-nine persons (one for each year of his life) to partake of seasonable cheer. Mr. Harry Hems, for the first time, was absent, being in St. Louis, U.S.A., superintending the dedication of the elaborate rector in Christ Church Cathedral. In the absence of the genial host, Mr. Greville C. Hems occupied the chair. A telegram was received from H.R.H. the Prince of Wales, in response to one from the chairman, "wishing the Devonshire and Cornish veterans a Merry Christmas and a Happy New Year. Among the speakers were the Bishop of Exeter and the mayor and sheriff of the city. At the very close, when the ancient citizens were indulging in a country dance, a cable was received from Mr. Harry Hems, despatched two hours previously from St. Louis, U.S.A. It read: "Merry Christmas. God bless you all.—Harry Hems."

A banquet was given by Denny C. M. Davis, of Christ Church Cathedral, and the Cathedral Chapter, at the Guildford, C.E., on St. Louis, Christmas Eve. The *St. Louis Globe-Democrat* of December 20, in honour of Harry Hems, creator of the ornate and beautiful retables and altar just completed at the cathedral, which is the gift of Mrs. B. B. Graham. Speeches were made classifying both retables and altar as a work of the highest type of religious architecture, and ranking the cathedral with the grandest buildings of the world. An expression of

time is, he says, that any construction could possibly put up with, and so it had some time to be taken in that taking a chair to be taken in that Baker Hall, many of the traffic from the church was left, and were trying to paint all his shabby desks white, which generally made them blacker and blacker, and perhaps called the first articles of the week of "church" newspapers, which otherwise might have left them alone as dirty to touch.

We had a pleasant talk, but as it happens in the world, not quite with the friends we should have selected. Long Compton was visible a couple of miles away, and then began the string of questions which, on every pious pilgrimage, archaeologists have to expect. Who deposited the 83 or 84 or 85 lumps of limestone here, and when and why? Wherefore would the tallest man of the stone-masons have been made King of England if he could have seen Long Compton then? Was it not built? And why did not his friends build it for him then and then? Did they think the houses would not let? Or did they fear the rates would be too heavy? Or did they split upon some question of a House of Lords, or of a National Establishment? These people might have agreed on questions of education, for perhaps none of them much wanted any. Perhaps all they could do was to fight anybody, anywhere, when, after all, as something, as we have often found it; but how did they fight better for setting up these stones? But wherever the people were, and wherever they came from, they must have had priests, for priests, speaking with authority, are the first officials that any community half-imposed, their admirers are sure to find it. On questions of beauty it will call for some ornament, and on questions of fact, for more theology, and the world is so full of ornamentists and other half-crazed persons that it seldom fails of a supply when it is prepared to pay for it. Perhaps this is not every architect's experience of later years; but unless their forefathers found it so, why were there ever so many churches? Faith and beauty are both rather out of fashion now; but unless faith has failed, is church building nearly given up? Non-conformist building is less common in its last days; but more for badness than for smallness of bulk; and the gentlemen of that persuasion who were in the church some months ago seem to have been singularly unlucky in the days to come.

As we do not know who raised the Long Compton Stone of Truth, we naturally cannot say what he did, and so we will think Mr. Thomas Hardy, I believe, did nothing supernatural at all. Perhaps, as a body, he was made up of sepiens who professed the state religion, and patriotic people who protest against it, much as happens in England now, and if so, we wonder whether his early public church architecture even pleased the people who built it any better than ours does now? Perhaps that is why we cannot all count the Right of the new alike, more especially when they are more than half-covered with snow.

REINFORCED CONCRETE BUILDING.
By Wm. G. Surwagant, L.R.I.B.A., M.C.I., and Charles J. Bunting, Surveyor (City Exam).

No. 20, HANOVER SQUARE.

(Messrs. Harris and M. J. de Architects.)
A very excellent piece of structural reinforced concrete is to be found in the addition

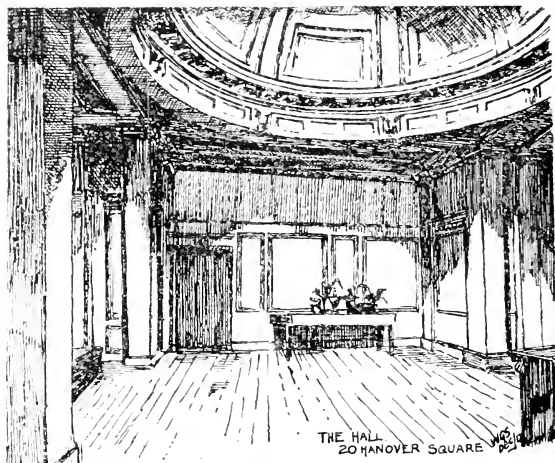


FIG. 1.

to this building, comprising Hall with Sale-Room under, and strong-room, erected for Messrs. Knight, Frank, and Rutley, selected as the subject of this article by reason of the inclusion of some unusual items of construction in the scheme, in order to meet the owners' wishes in the provision of the special accommodation which they required.

The scheme comprises the construction

tion to the main building, and indicate the problem which had to be faced in constructing the Hall, with the external walls inside these of the Sale-Room below, and approached from the main staircase by means of a long corridor; additional difficulty accruing from the necessity of affording the Sale-Room as much natural lighting as the circumstances would permit.

It will be seen that the ceiling in both

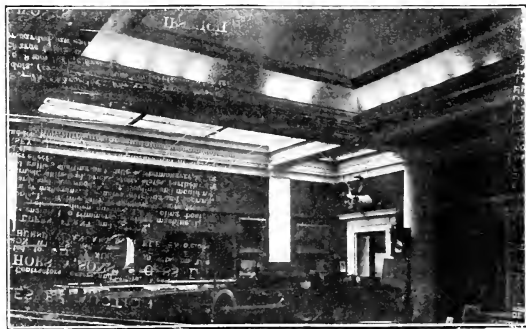


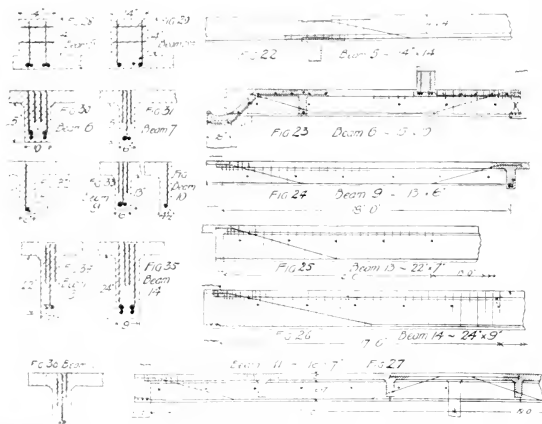
FIG. 2.

of a Hall shown in Fig. 1, on the first floor, and a sale-room shown in Fig. 2, on the ground-floor, with basement under the latter apartment, the whole structure forming an addition to the existing building.

The Hall, which it was desired should have an extensive and unobstructed floor space, was formed with about 1,200 ft. clear superficial area (10 ft. by 30 ft.), whilst the sale-room on the ground-floor beneath was similarly constructed with about 1,750 superficial feet clear between the walls. The diagram illustrations, Figs. 3 and 4, show the positions of the rooms in rela-

tions of the Sale-Room has been glazed over the whole space outside the main beams supporting the Hall, the main walls of which over-stand, and from alcoves which provide additional space and afford opportunity for enhancing the architectural effect of this apartment. These over-hanging walls are supported on upstand beams, taking bearing on the main girders, and rising about 2 ft. above the level of the glazed roof.

Fig. 5 illustrates the general plan adopted in arranging the beams of the Hall-floor, which are lettered for reference to the details.



The character of the beams in the lattice shear reinforcement is adopted in Section C-C, one of the type shown in elevation in Fig. 24 and cross section in Fig. 25. The detail of which latter shows the rods bent down and split at the free end. The method employed to con-

section, by reference to which it will be seen that a double line of lattice-rods at 6in. intervals should be 12in. within either face of the 6in. concrete walls constitutes the general type of construction, augmented by an extra set of binding rods placed at intervals to the main rods (see Figs. 41 and 42). The set of rods in one wall is carried to the end at the angles, and split, whilst the intersecting rods are turned round the angles and bound as shown in detail (Figs. 41 and 42).

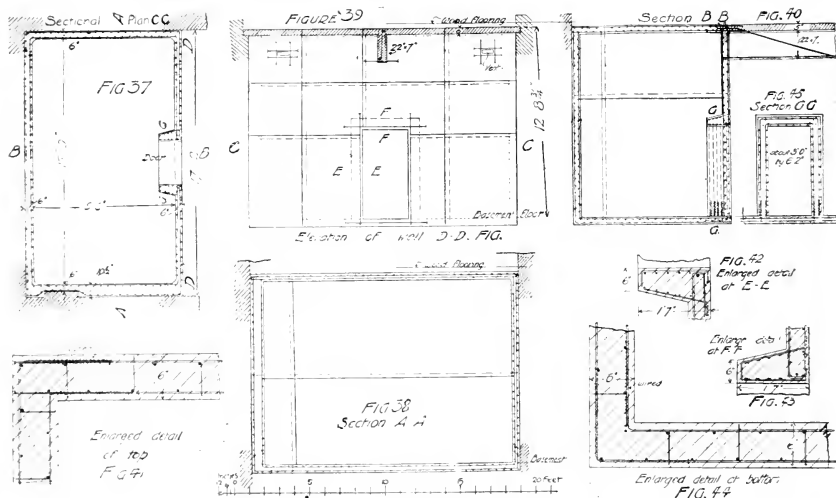
A door opening 3ft. by 6ft. 2in. is constructed of stouter rods intersecting at the angles, and going 12in. into the wall on either side of the opening (see Fig. 39), the head and reveals being formed by small, closely-placed rods secured to the floor reinforcement. Figs. 42 and 43 show in detail the linking arrangements.

The vent-openings were formed with a simple cross of rods shown in elevation (Fig. 39).

The concrete employed in the general work is composed of 5 to 1 sand, shingle and cement concrete, 4 to 1 being substituted for the strong-room.

Combining several interesting items of construction, a study of this work reveals one of those structures where many intricate points of detail have received that close attention and careful consideration which has done more to compass many of the fine works in reinforced concrete than is perhaps generally believed.

Mr. E. P. Wells was the engineer, and



is shown in the plan, support the single story private house adjoining the Sub-Room. The building is therefore comparatively small in plan, but the strain, Beam 14 has a clear span of 38ft., and is constructed in 2in. by 9in. with four stout tension rods to the detail given in Figs. 26 and 35, whilst beam 13 is also an interesting example of light beam constructed across a long span, which in this case is 26ft. The depth is 22in., and the width 17in. Two sectional rods only are used as shown in Figs. 22 and 23, with enlarged sections Figs. 28, 29, and 30. A

street the flat and gutter are also shown in Fig. 23. The concrete flat is 6in. over all in thickness, the gutter being formed by fishing over the wall. The reinforcement is placed at 1ft. intervals 2in. above the lower edge, and bound together with cross-rods, is lapping well over at the ends.

The strong-room situated in the basement in the position shown in Fig. 17 is also interesting as another example of the application of reinforced concrete.

The floor area of the chamber is 15ft. 9in. by 9ft. 6in., and the height 12ft. Fig. 37 shows the general plan, and Fig. 38 a

section, by reference to which it will be seen that a double line of lattice-rods at 6in. intervals should be 12in. within either face of the 6in. concrete walls constitutes the general type of construction, augmented by an extra set of binding rods placed at intervals to the main rods (see Figs. 41 and 42). The set of rods in one wall is carried to the end at the angles, and split, whilst the intersecting rods are turned round the angles and bound as shown in detail (Figs. 41 and 42).

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Mr. E. P. Wells was the engineer, and

the reinforced work was carried out to his design by Stuart's Granolithic Co., Ltd.

Epping Urban District Council have resolved to ask the Local Government Board to permit by-laws to be altered so as to admit of a cheaper class of house being erected in the district in order to facilitate its growth as a London suburb.

The twenty-ninth annual dinner of the Clerks of Works Association will be held at the King's Hall, Holborn Restaurant, on Saturday, February 10, at 6 p.m. The chair will be occupied by Mr. Gerald C. Horsley, F.R.I.B.A., president of the Architectural Association.

REINFORCED CONCRETE.

Three papers were read at the ordinary meeting of the Institution of Civil Engineers, of which we give abstracts.

REINFORCED-CONCRETE WHARVES AND WAREHOUSES AT LOWER POOTUNG, SHANGHAI.

By S. H. Ellis, M.Inst.C.E.

The paper describes works recently constructed, under the author's supervision, beside the Whang Poo River, near Shanghai, in North China. These comprise a reinforced-concrete piled wharf, 1,600 ft. long by 17 ft. wide, with a minimum depth of 21 ft. of water at its face; a reinforced-concrete quay wall, 495 ft. long and 21 ft. high; and two reinforced-concrete four-story warehouses, each 300 ft. by 100 ft. in floor-area; as well as offices and staff quarters, sheds for temporary storage of goods, and a power and light station, the position and depth of foundations being at some length, the site consisting of river-deposited silt to an unexplored depth. The wharves and lighter buildings are founded on groups of reinforced-concrete piles. The warehouses rest on a raft of reinforced concrete (girders, beams, and floor-slab), connecting the columns with a wall 4 ft. for to 6 ft. deep. A brief account is given of the methods employed in driving the wharf-piles, of which over four thousand were used, and in the formation of the superstructure. The chief feature of the latter is that all members but the pile-caps, beams, and deck, were moulded on shore, and erected in place when matured. The quay wall is built of concrete, masonry, and consists of a thin vertical wall and horizontal deck connected by buttresses, the whole founded on piles. A slight forward movement of the structure is described, and the means adopted to ensure its stability.

The warehouses have reinforced-concrete floors supported by columns, the chief feature of which consists in the vertical members being bound with a continuous rod wound spirally, and enclosing an area of heavily-stressed concrete. The interior first-floor columns are designed to carry a safe working-load of 376 tons each. The nature and method of the reinforcement of the concrete are briefly described, and the average results are given of three series of compression tests which were made (on the site) with 8 in. cubes of 1:2:4 mixture. These gave average results of 2,540 and 2,811 lb. per square inch at 3 months, and 4,137 lb. per square inch at one year. The various methods of reinforcement employed were described, and the basis of calculation is stated. The points chiefly dealt on are, first, the reinforcement of the lower columns in the warehouse; secondly, the general method of ensuring that the steel skeletons were firmly bound together, with no loose pieces; and thirdly, the particular plan of effecting this in the wharf-girders, by employing a lap-up reinforcement of angle and flat bars riveted together. A description is given of tests to destruction which were carried out on a full-sized experimental wharf-beam, a warehouse-beam of corresponding character, and five experimental columns of reduced size. Also of loading-tests applied to the warehouse first-floor columns. The question of equipment is dealt with very briefly, and the unit costs of the main items of the work are given.

THE DIRECT EXPERIMENTAL DETERMINATION OF THE STRESSES IN THE STEEL AND IN THE CONCRETE OF REINFORCED-CONCRETE COLUMNS.

By W. C. Popplewell, Assoc. M.Inst.C.E.

In carrying out the experiments described in this paper, the author sought for a satisfactory method of measuring the shortening of the steel bars and the simultaneous loading of the adjacent concrete under the load applied to reinforced columns. From these measurements, if they were reliable, he thought it would be possible to calculate the stresses in the steel and concrete when the elastic moduli for the two materials were known. It was also thought that measurements made in this way would be the means of revealing any movement of

the steel relatively to the concrete. The main experiments were carried out on five columns 6 in. square, each reinforced by four round steel bars $\frac{3}{4}$ in. diameter. Loads were applied in a testing machine, and corresponding shortenings of the steel and concrete were measured by means of Mariotte extensometers. For the steel, these were applied to the ends of pairs of pins projecting from the reinforcing bars through holes in the concrete, and for the concrete they were applied to the surface, as near as possible to the steel. From the results of the experiments, four pairs of curves were plotted for each column, one pair for each of the bars. These curves are given in full detail in the paper, and their peculiarities are discussed. Besides the main experiments, others were carried out to compare the effect of loading when the load was uniformly distributed over the end of the column and when it was applied in the centre. This enabled a comparison to be made between the effect of having the load transmitted directly to the ends of the bars, and having it communicated to the bars through the holding grip of the concrete. The result showed practically no difference. The experiments to find out the value of the modulus for the steel and concrete yielded values, respectively of 30,200,000 lb. and 1,553,000 lb. per square inch. A further set of experiments carried out to determine the intensity of the frictional grip of the concrete on the steel resulted in values ranging from 300 lb. to 600 lb. per square inch of bar surface to concrete slipping. The stresses in the steel and concrete, calculated for working load of 13½ tons, which the columns were designed to carry, were found to be respectively 437 lb. and 8,650 lb. per square inch. This gives a load on each bar of 17 ton, and, comparing this with the load required to push one of the bars through the concrete, the intensity of the frictional grip, it is evident that from the point of view there could not have been any slipping of the steel in the concrete. The author considers that the manner in which the strain measurements were made proved very satisfactory, and that the method might be extended to other cases. A careful inspection of the plotted diagrams appears to show that, when all the effects of eccentric loading have been eliminated, there is no evidence to indicate that slipping took place, and it is evident that in columns of this kind, made up with plain smooth bars, the two materials behave like one so far as their strain effects are concerned.

COMPOSITE COLUMNS OF CONCRETE AND STEEL.

By William Hubert Burr, M.Inst.C.E.

The effect of a concrete filling on increasing the carrying capacity of a steel column having never been sufficiently investigated, the present series of tests were carried out by the author. The columns tested consisted first of two types of built-up columns of plain steel, and secondly of exactly similar steel members filled with concrete. The first series of composite columns were filled with 1:2:4 concrete, and were tested at three months. The steelwork consisted in one case of four vertical steel angle bars arranged as the four corners of a square, and braced together with lattice bars to form a square column 6½ in. in exterior dimensions, and in the second case of four vertical channels arranged with their flats facing each other, opposite sides of an octagon, and wrapped at intervals with batten-plates bent round in the form of an octagon $\frac{7}{16}$ in. across the flats. Only the concrete lying within the exterior dimensions of the steelwork was included in the calculations. All the columns were 7 ft. long. Of each type were two, one filled with concrete, and two without concrete. The plain steel columns withstood an average total load of 67 tons on an area of 4 square inches in the case of the angle construction before failure, and of 68 tons on an area of 4.76 square inches in the channel construction. The stresses increased securely braced. The addition of concrete increased the maximum loads before failure to an average of 98 tons on a total combined area

of 12.25 square inches in the angle construction, and to 96 tons and 112 tons respectively on an area of 49.75 square inches in the channel-bar columns. The modulus of elasticity of the steel being known, and the compression of each column under known loadings being measured, the modulus of elasticity of the concrete and the ratio of the stress can be calculated. In the case of the angle-bar columns, this modulus was 2,321,000 lb. per square inch at a stress of 1,360 lb. per square inch, but decreased as the stress on the columns increased. From a description of the method of failure of the various columns, it is evident that increasing the lateral deflection is a cause of compression. The author concludes by saying that the tests would justify working stresses as high as 5,000 lb. to 7,000 lb. per square inch in columns of this nature, and possibly higher stresses for structures of unusual magnitude.

THE PLANNING OF SCHOOL BUILDINGS.

A discussion on "The Planning of Elementary School Buildings" took place on Friday, January 5, at the annual meeting of the Conference on Education, which was held at Armstrong College, Newcastle-on-Tyne. Ald. Sir Francis D. Blake, Bart., chairman of the Northumberland Education Committee, presided.

Mr. John E. Dougherty, headmaster of Christ Church Elementary School, Newcastle, read the opening paper on the subject. He said our school buildings of the day, well constructed and arranged with a view to their use, and standing on conspicuous sites, were witnesses of the growth of public ideas in regard to the education of the youth of the land. No longer was the school building the outcome of a haphazard decision, the provision of buildings was now a charge upon the funds of the community. The speaker classified the structural features of the modern school, and enumerated the essentials to the successful working of a school. On the question of playgrounds he said every elementary school should have a game as part of its routine of work. To this end, the school site, whenever possible, grass fields should be provided for groups of schools, each school of which could use the space in turn, and that the playgrounds at the school should be limited in proportion. In conclusion, Mr. Dougherty said the trend of events seemed to point to the design of smaller classes, and to the recognition of the extent to which the ability of the more generally employed qualified class teacher; further, there appeared to be necessity for even more attention to the training of children in habits promoting health, and to the provision of greater air space and fresh ventilation.

Mr. G. S. Phillips, M.P., L.R.I.B.A., of Moot Hall, Newcastle, in answer to the Northumberland Education Committee, read a paper on "Principles of Planning and Construction." He said the Education Act of 1902 had marked a great step forward in the educational welfare of the country, and in no direction were more improvements observed than in the matter of school buildings. The important question of school planning had entered upon a new era. That was due to the growing dissatisfaction with existing models, and an increasing recognition of the need for housing children under better conditions during their school life. In Northumberland they were doing what they should to help in the change. He considered that the number of classrooms should be seven for a school accommodating 250 children, and eight for a 100 school. No classroom should accommodate more than 50 to 56 children. What they aimed at was not a large body of dead air, but a roomy room, where the children frequently changed. Accompanying the paper were plans of various elementary schools in the county, and Mr. Forrest, having compared and explained them, went on to say it would be well if architects made up their minds that they could get valuable assistance from school managers and officers, and that they should be able to act accordingly. He was of

GENERAL PRINCIPLES.

The whole case for good lighting is embodied in a simple axiom, viz.: "The purpose of artificial lighting is to make readily and properly visible the things required to be seen."

This may be made more definitive by the following rules:—

1. The lamps or other sources of light to be disposed so that they do not occupy the field of vision.
2. The illumination to be sufficient to cause the objects to appeal at once and with comfort to the eye.
3. For general illumination the light to be well diffused, with a preponderating downward direction, freely flooding ceilings and walls.
4. Local lighting, to such as desks, benches, exhibits, etc., to be specially suitable, and in most cases adjustable in position and power.
5. The colour to be as pure and white as possible. Monochromatic light, as a rule, to be avoided.

These rules must be strictly adhered to. Curiously enough, some of our illumination reformers have advocated similar principles and straightway broken them in their next job. A false light makes a false impression, and an interior, no less than a face, can only show its own self when properly lit. It requires nothing more than common sense, and a consideration of the natural demands of any object to be illuminated, in order to produce truthful and agreeable results.

GENERAL V. LOCAL LIGHTING.

The relative merits of general and local lighting have been the subject of much discussion. Thus, a bank may have a general illumination, sufficient for desks and all purposes, or the desks may be locally illuminated with desk-lamps, from which a small amount of light may escape into the gloom overhead; or, again, there can be a combination of both. Daylight has been quoted as an example in favour of general lighting, but when it becomes practically impossible to provide artificial light equal in quality and abundance to that of freely admitted daylight, nothing could be said against it. It is a question of sufficiency of light, and of what light be illuminated, each case needing special consideration. In the average public hall general lighting only would be best, because the illumination at the working level, which would usually be sufficient at 1 ft. candle, could easily be obtained, and because it is desirable to exhibit the decorative features of a school- or reading-room would be a different matter. For the latter, candles would be necessary, and to get this in general lighting may mean a fatiguing blaze of light and a large expenditure, while any varying needs could not be met. There are cases where all needs are best met by local lighting only, but the more economical and satisfactory results are usually obtained by a small measure of general lighting combined with an adequate and well shaded local lighting. General illumination may be broadly considered as of two kinds—direct and indirect; but there may be modifications and combinations of both.

Direct lighting is that in which the light radiates immediately from the source to the objects to be viewed. Where glass shades are used, it would still be considered direct lighting. This method is usually economical and convenient; but it should be used only where it can be made to accord with the foregoing rules.

In this connection, I would like to make some remarks upon shades and shading. The art of shading consists in the use of shades that will afford complete protection to the eyes, with a minimum loss of total light, to produce better illumination and to increase visual acuity. The word "shade" implies some protection; but what is commonly called "shades" are ridiculous misnomers. They may be classified into (1) transparencies, (2) diffusers, and (3) real shades. It must be obvious that a globe, bell, or screen of glass that is transparent, or so lightly flared or so finished as to be nearly so, can afford no protection to the eyes, par-

ticularly to those who seek to find something directly in it; and yet the latter part of the bulk of the average figure mentioned consists of this sort of thing. In diffusers and transparencies the object is to distribute the intrinsic brilliancy of the light over the visible area of the globe or shade. Nothing does this more perfectly than opal glass, although with considerable loss by absorption.

Prismatic glass, as at the same time object, and, although it passes more light, is usually less successful. Frosted or ground, ice, opaline, and the like are improperly counted as diffusers, for the light remains as a brilliant centre. But even the best of these, the opal and the prismatic, are commonly from 20 to 100 times too brilliant to be directly before the eyes. On the other hand, they are often needless, dangerous and wasteful. For instance, the surface of an ordinary 8-in. globe is nearly 200 square inches. It is placed, say, on a bracket. It will be seen by anyone that not more than about 35 square inches is employed in screening the light, and yet it blocks out the whole 200 in. for the sake of 35. Real shading is effected by opaque or semi-opaque screens, the latter passing not more than 1-10 candle-power per square inch—just enough to cover the bare lights, and no more. By far the greatest proportion of light will, by this means, fall directly and directly flood the ceiling, walls, and other objects, and the practical result will be a pleasing and soft effect, with easy discernment of detail. Reflectors are sometimes used with great advantage, particularly those of opal and prismatic glass, which both reflect and refract; but they should only be used where they are essential to a required result.

Indirect lighting is that in which the illumination is obtained from surfaces illuminated by concealed lights. It usually presupposes a white ceiling and upper walls or other extensive diffusing surfaces—the larger the better. The results are great uniformity of lighting, approaching practical daylight more closely than any other system, while admitting of greater distinction of vision and affording comfort to the eye.

Indirect lighting has been objected to this form of lighting—(1) that it has a cold and cheerless effect, (2) that there is a flatness and an unpleasant absence of shadow, and (3) that light is wasted and absorption. With regard to the first, if by "cold" is meant whiteness of light, it is a point gained. Nothing but prudence could prefer coloured light. The ruddy glow of evening may be very beautiful, but we should not like to have it all day. As to the second, that it is flat and shadowless, it is really not true. Indirect lighting does not more than to relieve the blackness of shadows, just as daylight does, which puts a soft gradation on relief. With regard to the last, it is a fact that of the total flux of light a considerable percentage is absorbed; but it is also a fact that more light enters the eye than by a higher intensity of direct illumination, and, as stated, vision is much easier. The means that may be employed are as lamps—providing they are of the right kind—tungsten glow-lamps or incandescent gas in inverted bowls or reflectors on pendants or brackets, or lights may be hidden behind cornices, screens, or in many other forms. Where there is not a suitable ceiling, downward reflectors will be required; but to maintain the principle, they must be large and with a diffused surface. It is absurd to put them under a good ceiling, as is often done.

PHOTOMETRY AND ILLUMINO-METRY.

Photometry, as we have known it for a good many years, has been confined to the laboratory, and consisted mainly in the determination of the candle power of lamps by the use of illumination tables, the practical work of the architect or illuminating engineer has been much facilitated by the recent introduction of very convenient measuring instruments known as "illuminometers."

LAMPS AND POLAR CURVES.

Where the choice of an illuminant is possible, preference is largely a matter of

convenience and economy. The tungsten lamp has been a great boon, and will continue to be so, but it is not without its drawbacks. It is a very hot body, and its light is not so pure as that of the incandescent lamp. It is also a very expensive lamp, and its life is not so long as that of the incandescent lamp. The incandescent lamp, on the other hand, is a very cheap lamp, and its light is very pure. It is also a very long-lived lamp, and its life is not so short as that of the tungsten lamp. The choice between the two lamps is a matter of convenience and economy. The tungsten lamp is a very good lamp, but it is not so convenient as the incandescent lamp. The incandescent lamp is a very good lamp, but it is not so economical as the tungsten lamp. The choice between the two lamps is a matter of convenience and economy.

DECORATION, WALL-PAPER, AND REFLECTORS.

Effective lighting depends upon several factors:—(1) The illuminant as expressed in candles or lumens, i.e., the light falling on a surface, irrespective of the nature of that surface; and (2) the light absorbing power of the surrounding surfaces. When an architect decides upon dark oak panelling or deep red wall-paper, does he fully realise the extent of its effect upon the lighting, or would he put as much as three times the illumination in such a room than in a room with light decoration? Where is the wall-paper that has printed on the back of it—"Avg. co-eff. refl. 0.42," or whatever the co-efficient of reflection may be? The factor of reflection is of more importance in the illumination of a room than is generally realised; indeed, without some reflection illumination would be absolutely nullified, the lamp might shine, but darkness would reign. What we do see depends entirely upon the specific absorption of the surfaces before us, both as to luminosity and colour. One foot candle on a white paper would be more than 200 foot candles on a dark velvet. The following are a few coefficients of diffuse reflection selected from Dr. Le Bell's list:—

	Per cent.
White blotting paper.....	0.82
White cartridge.....	0.82
Light yellow paper.....	0.62
Yellow paper.....	0.42
Yellow painted wall—clean.....	0.42
Yellow painted wall—dirty.....	0.22
Pale pink paper.....	0.22
Vermilion or burg green.....	0.12
Dark chocolate.....	0.04
French blue.....	0.04
Black velvet.....	0.04

The rule for finding the total illuminant due to the lamp plus the reflected reflections, in the simplest case, is as follows:—

$$\text{Total illumination} = I(1 + \frac{R}{1-k})$$

where k is the co-efficient of reflection of the initial illumination; R less than unity, the above may be thus stated:—

$$\Sigma I = 1 - R$$

from which it may be seen that a room lightly decorated has a co-efficient of reflection of 0.7, the total flux of light on any surface would be 21 times that of the initial illumination. If, however, we take a case of dark walls, i.e., say, 0.15, the total would be only 1.17—no increase worth speaking of. In practice, secondary illumination adds from 25 per cent. to 100 per cent. of that from the lamps. Of no less importance is the physiological aspect of contrast against dark backgrounds, to which I have already referred. The eye is more sensitive to white interiors, and not to white interiors are fatiguing to the eye to the mind; if white is used, the eye is varied just as soft shadows vary on surfaces. If a darkly decorated interior were more light to lighten it, such depth of colour serves no better purpose than to oppress the

light. According to Poole's law of sensation, contrasts in light and shade are relative and not absolute, and the relation being fixed we are unable to judge of absolute intensity; so that any scheme of decoration on a somewhat lighter scale may equally meet the artistic sense and afford considerable advantage in illuminating value. The eye seeks relief and rest, and the lower part of a room, where the value of reflection is small and where the eye more naturally falls, is the best place for darker areas. Hence, floors should be dark, and shades are desirable, but not in too strong contrast to the upper walls.

PRACTICAL APPLICATION.

This paper will be concluded with a few notes on the practical application of the foregoing to churches, schools, hospitals, public libraries, and factories chosen to afford as large a variety of treatment as space will allow. The important subject of domestic illumination was too large to be included in this paper.

Churches. The simple minded person would suppose that the beautiful decorations of many churches are placed there to be seen; but go into the first church you may meet, during full evening service, and you will probably find that the upper two thirds will be lost in a gloom that is heavy and depressing, while the lower third will be brightly occupied by dazzling points of light, and the chancel scarcely visible; every face will have a hard, patchy appearance due to want of diffusion, and if the preacher is at all interesting two inexorable pupil lights will send you home with smarting eyes. It is not a question of brilliant lighting versus the mystic gloom, for such some architects have advocated as conducive to worship. The "dim religious light" of a morning service may have its charms, being usually relieved by softly illuminated surfaces that can be seen with comfort; but the obscurity of an evening service, pierced by obtrusively bright points that dominate everything and raise a barrier to the eye, the eye is not likely to be helpful to worship, except by way of penance. This is but one point of consideration amongst many to be found in church lighting. Treatment will depend upon the style of architecture and many contingencies. Sufficient light for practical purposes is the first consideration. If foot-candles at the pew level. The next is eye comfort, and another is to make the building and its decorations easily and agreeably visible, a quiet, general light is all that is required. Churches are effectively illumined by lights behind the chancel arch or other projections. The Guards' Chapel in St. James's Park is so treated, and has a "soft effect," the pews and reading desks receive 16 candles. No light and no shadows should be illuminated. Avoid what has been already described as active lighting.

Schools. I have seen a number of modern Board Schools, and, generally speaking, have found the artificial lighting to be a misfortune, and, moreover, having usually but four gas or electric globe lamps in a class of 40 children, and these too near the centre of the room, and the classrooms dimly lit, lights in nearly every case in the form of a range of six or eight, both scholars and teachers and the blackboard, which is often not really less light than else. The same is noticed in the glass. Dealing with the room, there are three main points to be considered, of which may be taken as a basis. (A) General illumination. (B) Direct lighting. (C) Indirect lighting. (A) General illumination. If the room is to get diffused light from above, and not placed under a lamp, it should be from window. (B) Direct lighting. If the room is to be lit from floor, it should be a general light, 6 ft. 6 in. or 7 ft. from floor, and the light should be now here and six or eight, and have enough holes in which to hang a lamp. (C) Indirect lighting. If the room is to be lit from floor, it should be a general light, 6 ft. 6 in. or 7 ft. from floor, and the light should be now here and six or eight, and have enough holes in which to hang a lamp. (C) Indirect lighting. If the room is to be lit from floor, it should be a general light, 6 ft. 6 in. or 7 ft. from floor, and the light should be now here and six or eight, and have enough holes in which to hang a lamp.

protected and the greater intensity concentrated on the desks, where it should be a minimum of 3 foot candles. For pencil drawing and needlework special desks or tables should have an illumination of 8 foot candles. The wall at the teachers' end is the exhibition screen, and should be specially lighted with screened lamps, giving an illumination of 5 to 6 foot candles.

Hospitals. It has been my privilege to inspect many of the principal London hospitals with special respect to their lighting arrangements, and where everything else is so very admirable the artificial lighting reminded me of Miss Nightingale's trenchant observation that "the very first requirement in a hospital is that it should do the sick no harm." There is, obviously, a universal want of discrimination in the modes of lighting, the fittings were generally found to be inappropriate, and the "shades" afforded no relief to the stinging points of light that were exposed to the eyes of the sensitive patient and to the lower and weaker part of the eye. Briefly, the want of adequate light, the lamp, preferably dark green opaque, the patients' light, the most conspicuous by their absence, the nearest light, usually a single glow or gas lamp, being 12 ft. or 14 ft. distant. There should be a screened light at the head of each bed, placed low behind and on one side of the head, giving illumination of 3 foot candles, and adapted for use for medical examination. The dispensary is usually the worst served. Dispensers have complained of the worry of reading the prescriptions in the inadequate light, while many bottles stand in semi-gloom. A shaded light, giving 3 or 5 foot candles, is required to each man; the shelves should be illuminated with screened lights, and adapted for use for medical examination. The operating theatre calls for special consideration, for there is a large amount of surgical work done after dark. Here, again, there is no established form of lighting, each hospital having its own arrangement—not all satisfactory. The essentials to success may be thus summarised:—(a) White ceilings and walls, pale grey or green dado and darker floor; (b) separate general illumination with screened lamps over the sinks and sterilisers; (c) the lights to the operating table should not be clustered together as they commonly are, forming black shadows; (d) the light should be over the table, whereby the surgeon's work is observed by his head and hands; (e) lamps must not radiate heat on the patient or on the surgeon's body; and (f) all septic risks must be avoided; therefore, there must be no dust-erecting cords and pulleys or fittings, and glass must be smooth and easily cleaned.

When a lamp is hung, it should be (a) direct lighting, white flame are placed over a diffusing ceiling light, or, where there is no skylight, indirect lighting, both affording a splendid light. There is an excellent scheme in practice in Germany, wherein solenoid beams of light are concentrated on the table from a projector lamp outside the room, and, against heat and the intrusion of workmen are quite precluded.

Libraries. There is, perhaps, no greater use for eye rest than in the continuous reading of educational literature. It is important, therefore, that the further burden of eye strain should not be imposed on the reader by misapplied and inadequate lighting. Better the plainest building where the books can be read in comfort than a marble mausoleum of literature that chills enthusiasm and wears the eyes of the student. I have seen many handsome libraries, but not one properly illuminated. The ordinary library requires a small measure of well diffused general lighting 0.5 to 0.75 foot candles. The principal feature, however, is

the local lighting, which should consist of:—(1) A separate light to each reader—on his left—with an opaque or semi-opaque shade; (2) every desk lamp should be adjustable so as to permit of a modification of from 2 to 10 foot candles, and under the reader's control; anxious librarians may have them made "fool proof"; and (3) the reader should be expected to sit on and off his own light, which would effect a great saving. The new stands are always well patronised. A good light is wanted for them, as newspapers are not so easy to read as a clearly-printed book. Where will you find book racks so illuminated that the titles can be deciphered without practically having to dab one's nose on the books? Where are the glazed indicators in the lending department that can be read without being bothered with glass? Do architects ever think of the irritation caused by the upward reflection from polished table-tops? There are many other points, but we must leave this for our last subject.

Factories and Workshops. Holland is the only country that has issued an Act that properly stipulates the amount of light to be provided, and where such as embroiderers, jewellers, and draughtsmen are required to have a minimum of 15 bougie metres (about 1½ foot candles), and all others in bougie metres. British legislation is confined to ensuring that there shall be no "objectionable" which are, respectively, to be "efficiently" and "adequately" lighted; expressions which mean nothing in particular, and therefore useless. Definite legislation is urgently necessary, for there is still an overwhelming majority of workers under conditions that are ruinous to eyesight and health. In machine shops the majority of accidents are said to occur after 4 p.m.; and no wonder, for brilliant points of light against a dark background must baffle the eyes and deceive as to distances. What is wanted is a well diffused general light, aided by whitened and illumined ceilings and walls. Nothing better for this purpose than indirect lighting. Screened local lighting should then be added to all points requiring the attention of operatives and to benches, desks, etc. Money spent in a liberal lighting of factories and workshops is repaid a hundredfold in better and more work.

In conclusion, I am glad to have had the opportunity of bringing this subject before the members of this Society, for I am convinced that until the architect makes the subject his own little goal will be done. True progress is, at present, blocked by the rivalry of competitive systems, and the jealousy and greed of commercialism. The client needs an independent authority, and who more suitable than an architect who thoroughly understands the art of illumination; for as no one can better know how to light his picture than the artist who painted it, so no one can better appreciate good lighting of an interior than the architect who designed it.

ORNAMENTAL CEMENT WORK.

Cement work as an art craft has hardly yet received the attention it will repay, and the result is often misapplication of the material, or its neglect, or remission to those whose ignorance or lack of culture are responsible for some of the monstrosities with which most of us are familiar.

Mr. Wheatley's book will be of use to all who want to understand the real capabilities of the material. He describes lucidly the methods and tools best adapted for working, the art of mould-making, and the necessary samples used, the choice of ornaments, and other objects practicable, and the extended uses in building up details to which it is applicable.

There are eighty-one illustrations, and the author quotes in conclusion our own architect last month of the "Cement gun" shown at Toronto as an instance of new methods of working which a new substance like cement introduces.

* Ornamental Cement Work, by GEORGE WHEATLEY, London, Sect., Greenwood, & Son, 8, Broadway, E.C.4. Demy 8vo, 3s. Post free, 3s. 6d.

CURRENTE CALAMO.

We do not think the great majority of readers who, with us, will regret the reference back to the Council of the R.I.B.A. at the meeting on Monday night, of its proposals for the amalgamation of the Society of Architects, need despair. We are convinced that the majority of those who supported Mr. Stanley Peach's amendment are neither covertly nor conscientiously hostile to the amalgamation, nor to Registration. A residuum possibly is; but the feeble exhibition of its views that found expression on Monday night is not likely to find many echoes among men of good sense or good taste. The latter will continue to rejoice with us in the broadminded, statesmanlike policy of the Council of the R.I.B.A. which has been pursued with such wisdom and advantage during the past few years, and will trust implicitly to it to accomplish its end effectually and speedily.

It is neither our right nor duty to point out to-day how it should do this. The shortest way is obvious, and we are inclined to think that if the Council took it at a subsequent early meeting it would be endorsed by a more numerous attendance of members, and probably by a change of votes of some who will have had the opportunity of reconsideration. But the Council of the R.I.B.A. and that of the Society may legitimately and advantageously find another course profitable. "The resources of civilisation are not exhausted." It is not going to be said of British architects that when an opportunity arose of ending a cleavage in their ranks of twenty-five years' duration, and of uniting the whole profession in a resistless crusade on behalf of the due recognition of its fit members, and the attainment of their just rights, that it was lost by treacherous desertion or by querulous and vulgar cantankerousness.

As far as the draft Registration Bill—the acceptance of which formed the basis of the agreement for the present—is again in abeyance—is concerned it is an open secret that it commended itself entirely to few members either of the Institute or the Society. If it is found possible to drop it for the moment and proceed with the amalgamation, well and good. If not, there is, among many alternatives, a course open which able men of both the representative bodies have discussed, which might obviate every objection which has been raised, and soothe all susceptibilities. Its details we may not divulge to-day; but they will probably soon be made public, and put into practical shape, if present arrangements fall through. Meanwhile, the duty of all loyal members of both bodies is to trust their respective Councils, at the same time exercising with perfect freedom their right of private judgement, subordinated only to conscientious desire for union and Registration.

The delightful little exhibition of Early Venetian pictures and other works of art at the Burlington Fine Arts Club will afford those of us who have seen so many of them elsewhere a welcome opportunity of renewing our acquaintance, and those who have not should seize the opportunity, aided by the well-edited catalogue, which is a credit to the compilers. The exhibition is designed to illustrate in particular the work of Giovanni

Bellini (c. 1430-1516) and his scholars. It culminates in Giorgione (1477-1509), who died before his master, and whose most famous and authentic works—the *Castelfranco Altarpiece*, the *"Landscape in the Storm,"* and the *"Soldier and Gipsy,"* at Venice, and the *"Three Philosophers,"* at Vienna—proclaim his artistic lineage. The committee are fortunate in having obtained the loan of another Giorgione—namely, Lord Alford's *"Adoration of the Shepherds,"* which has not been seen in public for many years, together with various pictures which illustrate the period before the maturity of Venetian art in Titian, Palma, Lotto, and others, who lived to break with the Bellini tradition.

Of the *"Adoration,"* it is sufficient to say that the beauty of its design and landscape sufficiently stamp its genuineness. The panel comprises a landscape with a group of figures 10 to 15 in. high, relieved against a dark cavern in sandstone rock. In the foreground, to the right, the Infant Christ is lying on the ground with a white cloth spread under Him. To the right of Him the Virgin and St. Joseph are kneeling in adoration; the former wears a rose-purple tunic, a blue mantle and a white hood; the latter a dark violet tunic and an orange mantle. To the left kneels a shepherd with clasped hands; his brown hat is lying on the ground. Behind him another shepherd is seen approaching the Child, holding a cap in his right hand and a staff in his left. Both shepherds wear torn coats of many colours. From the left an evening glow is diffused over an idyllic landscape, and touches in succession, with shafts of light, hill and dale, towers and foliage, the sandy spits of a lake and rippling water, till it falls full on the infant Christ and the kneeling figures of his father and mother. A winged cherub's head hovers above them lit by a ray of light, and illumines the edge of the gloom behind. Two more radiant cherub's heads are above the shepherds. In the cavern the heads of the ox and the ass are dimly seen. From the upper left corner an angel descends, bearing the tidings to the shepherds, holding in his hand a scroll on which is inscribed *"Gloria."* The whole forms a combination unexcelled by any other of the characteristics of Giorgione's work, which are so unmistakable.

Among the many lent by Mr. R. H. Benson is the interesting *"Primrose Path of Dalliance,"* which some thirty years ago was described at one of the Academy winter exhibitions as *"Malatesta and his Mistress Receiving the Pope's Legate,"* and attributed to Giorgione. Also, his *"St. Jerome Reading,"* an undoubted Giovanni Bellini, signed and dated. Of the rest, probably the least familiar are Mr. Fairfax Murray's *"St. Sebastian,"* by Antonello da Messina; Sir George Holford's *"Head of a Boy,"* by Bellini; Mr. J. Annan Bryce's *"St. Mammas thrown to the Beasts,"* attributed to Joseph Bellini, or his school; Sir Henry Howarth's *"Rest on the Flight into Egypt,"* a very fine Previtali; and Mr. W. M. de Zoete's *"Christ at Emmaus,"* an early Jacopo Bassano, which is given a place for the sake of its former but erroneous attribution to Murziade.

The magnificent examples of early glass and enamels lent by Mr. Otto Beit and Mr. George Enmorfopoulos are of great value and interest. The small Saracenic 14th century beaker is a little gem of its kind. The Arab

glass lamp, probably from a Cairo house, and of the period of the Mamluk Sultans, is as curious as it is beautiful. It is encased in colours and gilt, with two broad bands of Cufic inscription, the lower one in white glass (formerly gilt) reserved in deep blue, the upper band in deep blue interwoven with white enamelled scrolls, and four smaller bands of floral pattern broken by arabesques delicately traced in red. At the widest part are six loops for suspension. Height, 4 1/2 in. But every object in the case in which the foregoing are shown is an incentive to a breach of the tenth commandment! Some of the other exhibits are worth inspection, among them Mr. C. H. Read's small hexagonal ewer of copper gilt, which stands on the gilt cassone, probably made in Venice by Arab workmen early in the 16th century.

There are some welcome exceptions, but, as a whole, the Royal Society of Portrait Painters' exhibition at the Grafton Galleries is not very inspiring, and we have seen most of the best things before. Among them are Mr. J. J. Shannon's portrait of Joseph Hofmann, Mr. Maurice Greiffenhagen's *"Lady in Grey,"* and Mr. J. G. Sargent's *"Lady Faudel Phillips,"* Neither Sir C. J. Poynter's portrait of the late King, nor Sir L. Alma-Tadema's portrait of Mr. William Whitaker Thomson, nor Sir H. van Herkomer's *"Portrait Study"* will be overlooked.

M. Lepine, the prefect of police in Paris, has issued a decree forbidding the throwing away in the streets of handbills, printed or unprinted, and of objects and substances capable of dirtying or obstructing the public highway. All caught in the act of causing a litter will be amenable to penalties. We hope they will be enforced rigorously, and that London will follow suit, though who is to enforce the penalties we do not know. The London County Council can hardly be trusted, while it is an accessory to the strewing of the streets with its used tram-tickets at its terminal stations.

What is a "hypothetical question"? Mr. James Rhodes, of Colmore-row, Birmingham, wrote to the Inland Revenue people at Somerset House last Friday, asking whether the contributions of employers for insured persons under the National Insurance Act, 1911, will be allowed as a deduction from trade and other profits when arriving at the sum assessable for Income-tax purposes under Schedule D; also whether any contributions made by any employer other than in respect of trade and other profits will be allowed as a deduction from other income as well, and relief granted from Income-tax in respect of same, and exemption or abatement of income tax allowed as well in respect of same. That is a question many large employers must be asking presently. Who is to answer them we do not know. It is no use writing to Somerset House, for the secretary has been "directed by the Board of Inland Revenue" to acquaint Mr. Rhodes that it is contrary to their practice to answer hypothetical questions, and in these circumstances they cannot undertake to deal with his enquiries. We suggest that every employer should at once write to his Member, and ask him to put a question as soon as Parliament re-assembles.

In connection with our recent remarks on this page it may interest some readers to

Our Illustrations.

CARTOON OF WINTER ROYAL ACADEMY SILVER MEDAL PRIZE DESIGN FOR THE DECORATION OF A PUBLIC BUILDING

Last week the general design of the scheme for which Miss M. L. Williams was awarded the Royal Academy Silver Medal was illustrated by one of our double-page plates, and a brief description by the artist appeared in our letter-press pages. To-day, we have reproduced the cartoon representing the principal figure in the composition and which the chief interest centres as the personification of "Winter," the subject of the design. He is holding the Sward of Destruction.

RIBA PUGIN STUDENTSHIP DRAWINGS: EASTER SEPULCHRE, ALL SAINTS, HAWTON, NOTTS

This famous Easter sepulchre forms part of a scheme on the north wall of the chancel, in which also is incorporated the founders' tomb, and a doorway, now blocked, formerly leading into a chapel. The south wall opposite completes the chancel treatment, with sedilia and piscina of the same date 1325-1350. The stone used is from the ancient quarries of Ancaster. In the niches at the foot are sculptured four sleeping centurions, accoutred in mail armour with spear and shield, the latter bearing curious devices. The back of the niches and spandrels over the ogee arches are finely wrought in low relief, as are also the spandrels in the upper portion of the sepulchre. Above this stage, and in the recess formed under the triple ogee arches, with central canopy, and flanked by small imitative flying buttresses, the Resurrection of our Lord, very beautiful, though much mutilated, is represented. Our Lord is seen holding a staff (probably a crozier), with right knee bent in an attitude of stepping from the grave, where yet His foot remains. On the right are seen the two Marys, holding alabaster, one apparently in the act of adoration, or perhaps this is a representation of that Mary to whom Jesus said: "Touch Me not, for I am not yet ascended to My Father." On either side of this group are two attendant angels. On the left is the niche for the Host. In the frieze below the crucifix is sculptured the Ascension. Our Lord's body is seen disappearing in the clouds, with angels on either side swinging censers as He ascends. Below are the eleven Apostles, and the figure of a woman (presumably the Virgin Mary, gazing heavenward). The whole of the carving is exquisite, particularly graceful being the rendering of the garments. It seems apparent that a different hand was employed in doing the frieze to that part directly beneath, the crocket work in the former being of a very different character to the latter, and where the joint occurs in the middle of a crocket the break in character (though purposely omitted in the drawing) is very noticeable. Nearly all the faces have been mutilated, though some yet remain fairly suggestive. The head of one, certainly, has entirely gone, as has also that to the figure of our Lord. The stone in the lower portion seems to have suffered from damp to a considerable extent, the rest of the structure being in excellent repair.

H. HERBERT FRASER.

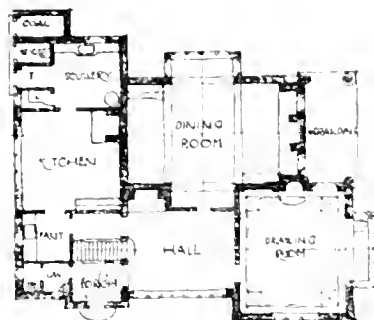
ST. AUGUSTINE'S CHURCH, HIGHGATE

The late John D. Sedding began this church, and erected what is now standing, some years ago. His drawing showing a scheme for finishing the west front, by Mr. J. Harold Gibbons, architect, was chosen in a limited competition, and more or less approved, but in execution some modifications will probably be made, to realise the architect's intention on the lines thus somewhat sketchily rendered by this Royal Academy perspective.

HOUSE AT GERRARD'S CROSS

This house has lately been completed, and the gardens are to be laid out at a later date.

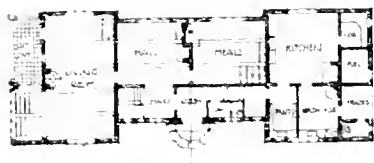
The details are simple in treatment, to convey the character of an old British farmhouse. The walls are stuccoed with a trowelled face, having good broad half-timbering at intervals. Messrs. C. E.



Gibbons and Co. were the builders. The architects are Messrs. Castle and Warren, Amberley House, Norfolk street, W.C.

HOUSE AT BYFLEET

This house has been erected by Mr. M. Hearne, builder, of Woking, Surrey. The plan is quite simple, with a good roomy hall, which could be used as a living room with every comfort. The walls are covered externally with white smoothcast, and the



roofs covered with hand-made tiles, with due regard to the exigencies of cost. The house is simple and broad in general treatment, no ornamentation of any kind appearing without a practical reason. The architects are Messrs. Castle and Warren, Amberley House, Norfolk street, W.C.

The extension of the Horniman Museum, in Ladbroke-park, Forest Hill, comprising a lecture-hall and a new library, the gift of Mr. Enslie J. Horniman, son of the donor of the museum, will be opened to the public on Saturday, the 25th inst., at 3 p.m., by Sir Archibald Geikie, President of the Royal Society.

Mr. W. H. Longdon, surveyor, and Mr. A. J. Elson, assistant surveyor, have been granted honoraria of £60 and £20 respectively by the Penge Urban District Council for the work entailed in supervising the erection of buildings in the grounds of the Crystal Palace during the year and works connected with the Festival of Empire.

The contract for the erection at Ashford, East Kent, of the 43 workmen's cottages which the South Eastern and Chatham Railway Company have decided to build to accommodate the men coming from Battersea, has been taken by Mr. C. I. Epps. The site is at New Town, at the south-east end of the existing houses, and the new dwellings will face South Willeborough.

The Manchester Waterworks Committee report that satisfactory progress has been made in the work of laying the third conduit from Thirlmere to the city. The northern and middle sections, for which separate contracts were let to Messrs. Morrison and Mason and Mr. John Moffatt, respectively, are now almost completed, and in the southern section, upon which Messrs. E. Nuttall and Co. are engaged, the work is being rapidly advanced. The additional pipe will be ready for use in about two years' time.

The Carnegie Duffendine Trustees have reopened communication with H.M. Board of Works in regard to the restoration of an underground archway in the Prater's Hall in the ruins of Duffendine Palace. Some time ago excavations were made within the abbey churchyard, and the archway was in a very dilapidated condition. The soil was accordingly filled in; but several of the trustees are desirous of making further restoration and preservation of the fabric. If the Board of Trade give their sanction to the scheme, a passage will be made from an inlet at the base of the Pend Tower to an outlet further south at a Norman doorway which is at present built up with masonry.

PROFESSIONAL AND TRADE SOCIETIES.

INSTITUTE OF SANITARY ENGINEERS.—At the meeting of this institution on Monday evening, an interesting paper on "The Planning and Development of a Village Suburb" was read by Mr. Michael Bunney, A.R.I.B.A. He traced the origin of the housing and town-planning movement back to Mr. Norman Shaw's work at Bedford Park, and to the late Mr. Rogers-Field's sanitary schemes, showing that but little attention was paid to these by the public until the publication of Mr. Ebenezer Howard's "Garden Cities of Tomorrow," in 1904, and the creation of pioneer garden cities at Letchworth, Port Sunlight, and Barnville, three distinct types of propagandist work. Mr. Bunney showed the essential differences that exist between garden cities and garden suburbs, and proceeded to explain in detail the actual steps and subsequent development of a garden city and the steps to be taken in laying out the roads and open spaces. In conclusion, he dealt with the financial side of the question. The chair was occupied by Alderman William Thompson, of Richmond, Surrey, the chairman of the National Housing and Town Planning Council.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. Edwin T. Hall, F.R.I.B.A., of London, read a paper on "Museums and Art Galleries" before the Liverpool Architectural Society on Monday evening, Mr. Arnold Thorneley presiding. Mr. Hall dealt on a comprehensive scale with his subject, and the informativeness of his lecture was enhanced by the pictures which were exhibited. He had a good deal that was interesting to say on the lighting of picture-galleries and museums, and the opinions of the directors of many of the principal institutions in English, American, and Continental cities were quoted as to the principles on which such buildings should be designed and the methods of lighting which produced the best effects. He gave an instructive account of experiments made on celebrated pictures and sculptures. The numerous slides shown included the plans and elevations of many of the most famous museums in Europe and America. A vote of thanks was passed, on the motion of Mr. Edmund Kirby, seconded by Mr. W. E. Willink, and supported by Mr. T. E. Eccles.

SOCIETY OF ARCHITECTS (STUDENTS' SECTION).—The first social gathering of the winter session, organised by the Students' Committee, will take the form of a smoking concert, to be held at 28, Bedford-square, on Thursday in next week, the 18th inst., at 8 p.m. Mr. H. V. Milnes Emerson, A.R.I.B.A., Chairman of the Students' Section, will be in the chair, and among the artistes who have promised assistance are Miss Hilda Campbell, Miss Dorothy Eales, and Mr. Harry Jackson. Students may introduce friends, and should intimate the number of their party to the honorary secretary of the Students' Section, 28, Bedford-square, W.C., in good time, as the accommodation is limited. The students' committee will welcome the presence of any member of the Society who may like to attend.

The Wool Green Urban District Council having appointed a special town-hall sub-committee, plans have now been approved for executing additions to the town hall and providing the additional office accommodation required and also two new courts for the holding of the local petty sessions and county courts. The estimated cost of the work is £6,000.

The death occurred on Tuesday of Mr. George Ellis, builder and contractor, one of the most prominent inhabitants of the Potteries district. The deceased was in a large way of business, and erected a number of public buildings, factories, and business premises of a superior type. Previous to the federation of the six towns, Mr. Ellis took a leading part in the public life of Hanley. He was an alderman of the old corporation of Hanley, and was mayor of his native town in 1898, 1899, and 1900.

THE CONVENTION OF AMERICAN ARCHITECTS.

Continuing our notice of the very successful annual convention of the American Institute of Architects, held in December at Washington, D.C., we observe that it was decided to appoint a special committee on publicity. This committee, which will work in conjunction with the secretary's office, will receive monthly reports from the various Chapters, and will endeavour to supply reliable information as to the work of the Institute. Not only is reliable information to be supplied to the public Press, but misleading statements published as to the practice of architecture will be corrected in the columns in which they originated.

An interesting discussion took place on the education of the draughtsman, introduced by Mr. Cram. The consensus of opinion as brought out in the discussion was a general approval of the plans outlined in the report of the Committee on Education, although there was on the part of certain speakers a tendency to regard with disapproval some features of the method employed by the Beaux Arts Society.

Mr. George Oakley Totten, Jun., gave an illustrated talk, describing the recent International Congress of Architects held in Rome.

Mr. Donn Barber presented an interesting paper, on

THE INFLUENCE AND ETHICS OF COMPETITIONS.

It would be improper and unfair, he held, to condemn competitions as a whole and indiscriminately, for from some points of view they seem to be a necessary evil. It is the continual abuse and mismanagement of competitions, the unbusinesslike, undignified, ill-considered desperate sort of struggles that ever carry in their train disappointment, prejudice, criticism, and hard feelings of many and varied kinds. All this is responsible for a condition that has become a most serious consideration in contemplation of the inter-relation of architects and bearing upon the actual work that we, as a profession, are doing and standing for. The architectural profession has for years been kept in a state of commotion, while the real solution of the difficulty seems as yet unfound. The problem must be dealt with directly and calmly, and in a manner devoid of all prejudice, and some true solution must be found at any cost. It seems to have become a very generally-accepted and recognised tradition in certain cases, notably where proposed structures of a public or semi-public nature are involved, that architectural competitions still prove to be desirable or necessary as furnishing, perhaps, the best available means for selecting an architect. Just at the present time in this country, however, architectural competitions seem to be declining in popularity. Where only a comparatively few years ago competitions were sufficiently numerous to provide almost continuous employment for some firms who were fortunate enough to acquire the major part of their work in that manner, to-day we find an immense quantity of important work being given out by direct selection and appointment, and competitions comparatively infrequent. It would be difficult to assign any real reason for the change which seems just now to be taking place. Can it be that the owner is gradually coming to see that competitions are at best very slow, and, if properly conducted, a most expensive method of choosing an architect? Is it possible that the owner realises that an occasional good preliminary scheme is, after all, the real limit of the competition method, and that being the case, competitions are in the main of no advantage to him? Does the owner begin to appreciate the extreme difficulty of devising a scheme of competition that will afford him conclusive assurance and evidence of the winner's ability to secure for him the final and practical execution of the design selected, without committing him to unnecessary, if not inordinate, expense? Notable instances exist where architects who have proven adepts in the preparation of com-

petitive designs, men of extraordinary developed imagination, and possessing marvellous dexterity in draughtsmanship, have been awarded the prize, and, later, the work, as a result of competition, and have during the prosecution of the work shown themselves to be devoid of practical experience, and even lacking in the ability to discriminate in the selection of competent assistants or superintendents. The ultimate results in such cases have probably had the very natural effect of somewhat impairing confidence in the competition method of selecting an architect. On the other hand, there also exist many instances where notably satisfactory results have been obtained through the method of competition, but have these not ordinarily followed as a result of choosing the competitors from the ranks of competent and thoroughly experienced practitioners, and paying the competitors so selected an adequate or reasonable sum for their sketches. It must of necessity be prejudicial to the interests of the owner that any architect should be allowed to enter a competition who cannot in advance establish his ability and competence to properly design and satisfactorily execute the work involved. It is sometimes urged that to open an unlimited competition may disclose some unknown but brilliant designer. This reasoning might be valid if the sole object of a competition were to secure a brilliant set of sketches. But, unfortunately, sketches in themselves give no real evidence that their author has the technical knowledge or matured ability to fulfil the promise of his sketches through proper and adequate control of the work itself in execution. The general influence of competitions can, for present purposes, be broadly divided as regards the influence on the architect. Theory presupposes competitions to be instituted with the sole purpose of advancing the interests of the owner, and practice proves that these interests are best served where a fair, clean cut and equitable agreement has been entered into between the owner and the architect before the competition takes place. The American Institute of Architects, after years of untiring study and labour, has finally issued a circular of advice relative to the conduct of architectural competitions, as a statement of the principles which it believes should underlie such agreements. Serious difficulty with the system prescribed, however, has been found in some cases where it has proved inexpedient, not to say impossible, to carry on important competitions along the lines of what is conceded and believed to be the best practice, owing to the general and natural desire on the part of the owner to get free advice in the form of the greatest possible number of competition sketches, and also on account of the surprising willingness on the part of the architect to rush into competitions where no pre-arranged agreement or understanding exists with the owner. The owner often regards what he believes to be the information contained and given in his particular competition, in the light of a consensus of expert opinion on the subject of the problem before him, and therefore is pleased or disappointed, as the case may be, with what he regards to be the possibilities of his project. On account of the quality and character of the information so given, the real satisfactory solution of the problem is often complicated, and confusion, rather than lucidity, results. The short-sighted, unbusinesslike practice of the seeking out of a client, and the offering to him of preliminary services on approval, and gratuitously, whether in competition or in the hope of finally being awarded the work, has in the past lowered the dignity of the profession as a whole, and resulted in the cheapening of the architects' services in the mind of the building public. The average owner seems to attach no particular value to architects' sketches, either as meaning or standing for more than he himself can see in them, or as representing anything like the cost and labour involved in their production. Architects are not paid enough for the work they actually do to be able to afford to waste their earnings on the whims and fancies of

an owner. The professional architect, after years of training and experience, and a better standing in the community, is to be more prominent before the public eye in public enterprises, in the execution of matters of good and important character, just how much of the time and effort to trace the influence and practice of the method and irregular competitions concerning the present the past is a question well worth considering. The influence of competition on the architect, aside from the educational advantage which a thorough education furnished at unjustifiable and excessive expense to the profession, has not to be deemed unreasonable, pardon and unfair, prejudice, misunderstandings, disappointments, and, in many cases, undeserved criticism. In competitions the resulting joy, if there is any, is of necessity confined to the winner; while the burden of disappointment is left to be shared by all the others who have competed through labour and expense. It has been proven over and over again, as an economical argument, in the case of competitions for small buildings, that the unsuccessful competitors have often expended collectively in the cost of preparing competitive designs, a sum equal to, if not exceeding, the gross fee that the successful architect has finally received for his complete services rendered in connection with the execution of the work involved. This cannot be justified either as a good public policy, or a sound professional policy. The query is, How long can the profession be expected to afford to continue the practice? The ethics of competitions would seem to be inseparable from the ethics obtaining in general practice of architecture. The application of decent methods in practice rests entirely with the individual practising architect, who must look unselfishly at the part he must play as a unit force in the great work of the present, in order that his architectural progeny may occupy that undisputed place in the affairs of the world that should rightly be given to those who represent the greatest of all constructive professions. The American architect of the future must of necessity become less of a creative artist, and more of a trained manager of building enterprise. The ever-increasing pressure for speedy and adequate execution will preclude more and more exhaustive study and tentative experimentation. It will become the duty of the architect to surround himself by specialists in design, in construction, in superintendence, in technical research and engineering; men representing every department of architectural practice, and possessing a knowledge in their individual capacity, perhaps, far beyond his own. The architect himself must remain, however, the master mind that organises and directs those who strive for the common cause of the work involved, and for the office. He will deserve to exercise a greater moral influence in public affairs than heretofore, for the sake of his organised efforts will be nation-wide, and his authority will be that of a broadly trained executive of varied experience, which, coupled with a high sense of duty, should make him a generous and true friend of public spirit and the eternal fitness of things.

On the closing evening of the Convention, Mr. George B. Post, who for more than fifty years has been a member of the Institute, was presented with the Gold Medal of Honor, which is only bestowed once in three years. The presentation took place in the auditorium of the New National Museum, President Taft being one of the numerous visitors present at the reception.

H.M. Office of Works are preparing and executing extensive structural alterations at the Castle on so large a scale that they will take some years to complete.

A new post office is being built at Rye, N.Y., by the Commissioners of Public Works, at a cost of over £3,000. The superstructure is carried out in local stone with red brick facings, and limestone dressings. The builders are Messrs. Alexander Hall and Co., Rye, N.Y.

Building Intelligence.

Correspondence.

HOW TO CHEAPEN TRANSPORT.

To the Editor of the BUILDING NEWS.

SIR.—I read your appreciative notice of my lecture at the Institute of Builders, on "How to Cheapen Transport," and also the paragraphs on the subject which you printed in your issue of December 15 last. In the latter you mention that you commiserate my argument. I would, M.P., to write a series of articles in the "Weekly Times," which attracted considerable attention, etc.

I feel it would be a great public service, and, incidentally, a benefit to this company, if some alert and energetic member of the House of Commons were to ask a number of questions. I think figures should be asked for showing the useful mobility on the track of a railway goods wagon, also (nirving out of the President of the Board of Trade's remarks to Mr. Hudson's question as to the rise in the ratio of expenditure to gross receipts of railways) what has become of the missing £200,000,000?

I draw your attention to the fact that no, only is this sum missing from railway companies' accounts, but that endeavours have been made by railway apologists to falsify the figures for it, which makes matters twice worse.

I feel sure you will agree with me that the sooner this matter is tackled, the better it will be for the railway shareholder, the railway workman, and the community—I am, etc.

A. W. GATTIE, Chairman.

The New Transport Co., Ltd., Bath House, Holborn Viaduct.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper. No money reply or coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

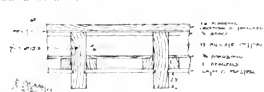
All else being equal, brief replies will stand the best chance. We emphasize that in some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line with the question, and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesday.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea, to Mr. Frank Wilson, 225, Nottingham-street, Sheffield.

QUESTIONS.

[19671.]—SOUNDPROOF FLOOR.—We give a sketch of a floor which we propose introducing in a house where we are about to build. We shall be glad of



criticism of the construction as a means of preventing sound passing from one floor to that below.

[19672.]—GARAGE FLOOR.—I want to put in a suitable floor for a motor garage in an old building measuring internally about 12 ft. by 12 ft. leaving a cellar 4 ft. deep below ground level. I propose as follows: An 8 in. by 6 in. iron girder down the centre, with suitable lagging in the walls, at each end, and then two brick pillars, equally spaced in the middle. Resting on top of this, at 2 ft. intervals, and bolted in the side walls, 4 in. by 12 in. iron girders. The space between them to be filled with concrete 5 in. deep, well rammed into the flanges, and 1 in. iron concrete flooring cast over all. The whole to be covered with a 2 in. concrete floor, 1 in. thick, weighing two tons each. I should be obliged

if some of your readers would offer their advice and suggestions.—John S. Gradwell.

[19673.]—CIRCULATING PIPES.—In a case where 1 in. galvanized galvanneal pipes connect copper boiler, and copper radiators, the water flows through, in an "S" shape, the water is not so hot, and the pressure is less, caused by an abundant amount of solid iron being discarded by the boiler, and the water of the pressure being about 100 lb. at cold supply system. Is there any simple device known (except an expensive filter) to intercept material of the boiler, and prevent it from circulating in the pipes, which become practically closed with this matter in a short time?—X. B.

REPLIES.

[19669.]—CONDENSATION ON CEILING.—The reason a ceiling shows damp inside when a rise of temperature occurs is not because damp comes through the walls, but for exactly the same reason that the surface of a cracked plaster (or a small house) shows moisture on "washing day." As the temperature of air rises its capacity for absorbing moisture increases, and a damp surface has an opposite effect; therefore when the temperature of the air rises suddenly the cold walls cool the adjacent air, and its capacity for holding moisture is reduced. The water in the plastered walls do not show the effect of a change of temperature, because the moisture soaks into the wall as fast as it is absorbed. The water in the plastered walls will show the damp deposit. The concrete walls and ceilings might, perhaps, be plastered, and thus remove the cause of the damp, but this is a costly way for the plaster. A new method of drying the walls and ceilings of a new building is suggested in what is termed "the open air method." It consists in the insertion into the external walls of houses, immediately above the ground level, of small triangular porous tubes, at equal intervals, and penetrating as far as the centre of the wall. The outer ends of the tubes are protected by small gratings. It is claimed that each tube will save permanent effect, and the air in it becoming saturated by contact with its damp surface, trickles to the lowest point of the tube, where it is discharged, and the air is carried into the atmosphere. Air from the outside flows in to take the place of that which has been discharged, and thus in each tube a permanent effect is established. The Scientific Improvements Company, of 35, Victoria-street, S.W., state that by this process buildings may be completely dried after plastering in thirty to sixty days.—W. H. Almond, Pitt-street, Longridge, nr. Preston.

[19668.]—CONDENSATION ON CEILINGS.—In the first instance "Inquirer" attributes the collection of moisture on the cement ceilings to the use of architectural phrasing, as meaning the collection of moisture in a heavily-laden humid atmosphere upon some substance of which the temperature is lower. Then he goes on to explain that in his opinion the moisture is caused by the evaporation of the water in the concrete. Is this not somewhat paradoxical? If personally, I have found that all internal Portland-cement surfaces when new will collect moisture, unless exposed to a direct air current, or sunlight. In an article on "How to cheapen transport" Portland-cement face, mixed, say, one and one, a fine surface is obtained, free from pores, which, for all practical purposes, is as perfect as a wall. This surface will collect moisture as readily as any other internal cement work, it cannot be from the water in the concrete, as the moisture exterior skin is waterproof, showing that the moisture is due to condensation power. Again, in exterior concrete or cement work, if there is much wind, and it is kept so wet to counteract the drying action, caused by the natural conditions, proving that water is a necessary and essential part of the concrete, and it is not, and need not, as is so frequently imagined, evaporate or dry out before the concrete will set, as, of course, concrete is a porous material, and it is not, although somewhat slower. Frequently, and possibly in this case, the concrete may have been deposited in the form of a wet and sticky condition, when the surface was poured, and it may find a way out somewhere, and this not being possible through the bitumen, it must come down through the concrete. This is a very serious matter, and this which caused considerable trouble. A monolithic concrete building was fitted with a concrete roof covered down with a patent bitumen waterproofing. The under side was rendered in cement and sand, with a finely-trowelled surface as ceiling. The work was done in wet weather, and a small amount of water was consequently absorbed between the rendering and the roof covering in the concrete. All would have been well had not a hot sun vaporized the water, and the result was that the roof covering buckled and eventually split, which proved an expensive item for those concerned. To obviate this, the rendering is better in float, which, by leaving the pores in the surface, so allows surplus moisture to work out. The cement rendering should be done during wet and warm weather, such as we have been experiencing lately, even though it having been completed for many years, and the rendering should be done in the same way. In the questioner's case no remedy should be tried for a time, as the work being new, moisture is not likely to be a serious matter. If the trouble is unduly prolonged, examine the roof for defects. Was a proper damp-proof course laid out in the first place? It is found to be perfect, provide ventilation at ceiling level to be

RELEASED.—The new Ulster Hospital for women and children, in Templemore avenue, Belfast, is approaching completion. The ground floor is devoted to administrative and staff purposes, with the exception of one wing, which forms on this level the out-patient department. On the first floor are two children's wards, each to contain fifteen beds, and a women's ward for eight beds. A two-bed ward for maternity cases is also provided for. An operating room, with clinical and anaesthetic rooms adjoining, is arranged in the centre of the west front for use in connection with both departments. On the second and third floors are bedrooms for the hospital staff. Messrs. Watt, Tulloch, and Fitzsimons, of Victoria street, Belfast, are the architects, and Messrs. Thornbury Brothers, of the same city, are the contractors. The clerk of works is Mr. William Harper.

COMPETITIONS.

BANKRUPT WORKMEN'S DWELLINGS.—The Council of the R.I.B.A. state that they are of opinion that the conditions of this competition are very unsatisfactory, but in view of the lateness of the date they do not see their way to inform members that they must not take part in it, but they express the hope that members will refrain from doing so.

BELFAST.—The corporation has decided to invite plans for public competition for erection of artisans' dwellings under the Improvement Order, 1910, prizes of £50 and £25 being offered for the best and second best respectively, and conditions of competition to be drawn up by the city surveyor.

GENERAL MACEO MEMORIAL.—The term for the presentation of models for the memorial of General Macao at Havana has been extended to July 20 next.

GREENOCK PURGE SCHOOL.—Members and Associates of the Royal Institute of British Architects have been informed by the Council that they must not take part in this competition.

NOTTINGHAM.—In the competition for Baptist church and schools at Nottingham the plans submitted by Messrs. Ernest R. Sutton, F.R.I.B.A., and F. W. C. Gregory, Bromley House, Nottingham, have been placed first by the assessor, Mr. Herbert W. Wells, A.R.I.B.A., of London. The church will accommodate 500 persons and the schools 400. Building operations are to be proceeded with at once. The amount to be expended is between £7,000 and £8,000.

WALLSEND ON TYNE.—The design by Messrs. Simpson and Lawson, architects, Newcastle, has been selected in the recent competition, which was instituted among local architects for a drinking fountain in the public park, to be erected to the memory of the late Ald. Joseph Duffy, ex-mayor of Wallsend. It consists of a granite drinking fountain, with inscription panels, and a circular lily pond at each side, fed by the waste from the drinking fountain. The waste will be of red granite, with the wing walls of the fountain being of the same material. The fountain is to be decorated with and things being of bronze. The inscription panels and drinking bowls to be polished.

The Scarborough Corporation have decided to erect an information house at the south end of Hunters-row, with other conveniences, at an estimated cost of £12,500, subject to the sanction of the Local Government Board as to the site acquired, and other proposals, and to the securing of a loan.

A bacon factory of considerable dimensions, and with a capacity of 500 pigs per week, will be constructed at Bulawayo, Rhodesia, during the present year, by the British South Africa Company. Specifications and plans are being prepared by Mr. London M. Douglas, F.R.S.E., technical adviser to the British South Africa Company, 2, London Wall buildings, London, E.C., from whom all further particulars may be obtained.

continuous, and I should imagine this will prove effectual, as the bulk of the water is caused by condensation—Gordon L. Thorne, 10, Atherton-road, Southampton.

[13069]—CONDENSATION ON CEILING.—This may be caused as suggested, although the cement, if thicker, would tend to keep the moisture in. I would suggest that it is the warm air of the building rising and coming in contact with the cold ceiling and condensing, with a little of the pump-action from the concrete. Remedy, efficient cross-ventilation near the ceiling.—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

[13070]—MASONIC HALL.—Plans herewith may be useful to inform. Elevations would also have been included but for the fact that these plans already made a great call on the Masons' time; but probably any further information required will be obtained by consulting the following illustrations, which have appeared in the BUILDING NEWS on

LEGAL INTELLIGENCE.

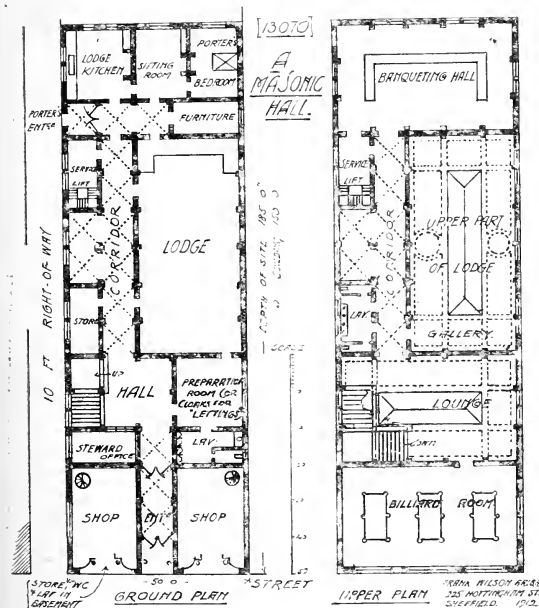
THE BUILDING TRADE TWELVE-MILE RADIUS.—At Croydon Police Court on Saturday, James Burgess and Son, builders, 22 Wyldershall, Wimbledon, were summoned by Charles Stribbling, a member of the Operative Bricklayers' Society, for 6s. 4d. alleged to be due as balance of wages, reckoned at halfpenny per hour for 148 hours. Complainant's case was that he took work at Bandon Hill School at 10d. per hour on the strength of a statement by defendants' foreman that it was just outside the twelve-mile radius—the one recognised by the London and Master Builders' Association and the Bricklayers' Society, under agreement, as the boundary of the area within which bricklayers should be paid 10d. per hour. On finding out, about a week later, that the school site was within the area, complainant reported the

Our Office Table.

All who know the splendid surroundings of Southwark Cathedral and its magnificent position, especially on the north and east fronts, are pleased to learn that a committee has been formed to consider, and, if possible, carry out, the timely suggestion of Lord Henderson-Layese, C.E., that the church and other buildings blocking the view of Southwark Cathedral from the river should be swept away to make room for an embankment and public garden. Mr. Henderson-Layese's letter, in which the suggestion was originally made, has been warmly endorsed by the Bishop of Southwark, and also by Archdeacon Taylor. The Bishop will act as chairman of the committee, which will at once get to work, and has already received some promises of monetary aid. The scheme is a bold one. The land and buildings lying north of the Cathedral, and fronting on the river, are assessed at £9,428 per annum. Including the bank and hotel and offices fronting on the approach to London Bridge, the total is £12,905, or, in round figures, £14,000. At thirty years' purchase, with 10 per cent. added for compulsory expropriation, the price would come to about £462,000, or £311,124 without the buildings on the bridge approach. Another large sum would have to be added as compensation to the dispossessed traders. The actual cost of clearing the site and building the embankment would be small by comparison.

Burford Priory, which dates from the 13th century, and had been restored as a residence within recent years by Colonel B. S. Sales La Terrere, has been sold to Mr. E. J. Horniman, "The Empty Saddle," by F. E. Waller, has, as its background, the courtyard. The picture shows Lord Falkland's horse returning to his home Lord Falkland was then the owner of the estate after the defeat of King Charles at the Battle of Newbury. The Priory existed from 1291 as an offshoot of the Abbey of Kewton. Edmund Harman, brother to Henry VIII., converted it into a lay residence, and it eventually passed into the hands of Sir Lawrence Tanfield, who was admitted to the Inner Temple in 1597. He entertained James I., who made his host Chief Baron of the Exchequer in 1607. A later owner was William Lenthall, Speaker of the Long Parliament. On the death of Speaker Lenthall, the property passed to his son, Sir John. The most interesting parts of the interior include Lenthall's chimney-piece in the drawing-room, the ceiling dating from the time of Henry VIII., which has been well restored, the staircase, the Gothic arched of the hall, the great fireplace, and the ceiling of the inner hall. The old chapel, which has not been touched, is connected with the house by cloisters and an upper gallery opening from the drawing room. We illustrated the Priory by a pen sketch of Maurice B. Adams in our issue of September 25, 1885, and chimney-piece in the ballroom on the first floor from a drawing by William Eaton, A.R.I.B.A., in our issue of Nov. 30, 1906.

An unexpected indirect result of the building of the County Secondary Schools in the Priory, Shrewsbury, has been the recovery of a valuable landmark in the form of the base of the "Round House," the site of which antiquaries had for a long time tried to locate in vain. The discovery has been made during the lowering of the Priory Gardens to permit of the making of a new approach to the Quarry. Unluckily, half of the base is covered by the school's play-ground; but the exposed half is to be preserved at the expense of the Shrewsbury Horticultural Society. The "Round House" was one of two circles. The "Round House" was a long stone wall, which were erected as a defence to the ford on the Severn below the Welsh Bridge, left unprotected by the great wall of Henry III. The wall and one of the towers disappeared long ago; but the "Round House" remained until almost the end of the 18th century, when it was



the following dates—Jan. 11, 1855 (plans, etc.); September 29, 1859; March 2, 1860 (perspective); July 20, 1860 (plans, etc.); July 26, 1861 (perspective); Jan. 24, 1862 (plans, etc.); June 16, 1865 (plans, etc.); April 7, 1911. A point to bear in mind in planning the Masons' hall is the probability of its being let for other social purposes than Freemasonry, on the off-nights—Frank Wilson, 225, Nottingham-street, Sheffield.

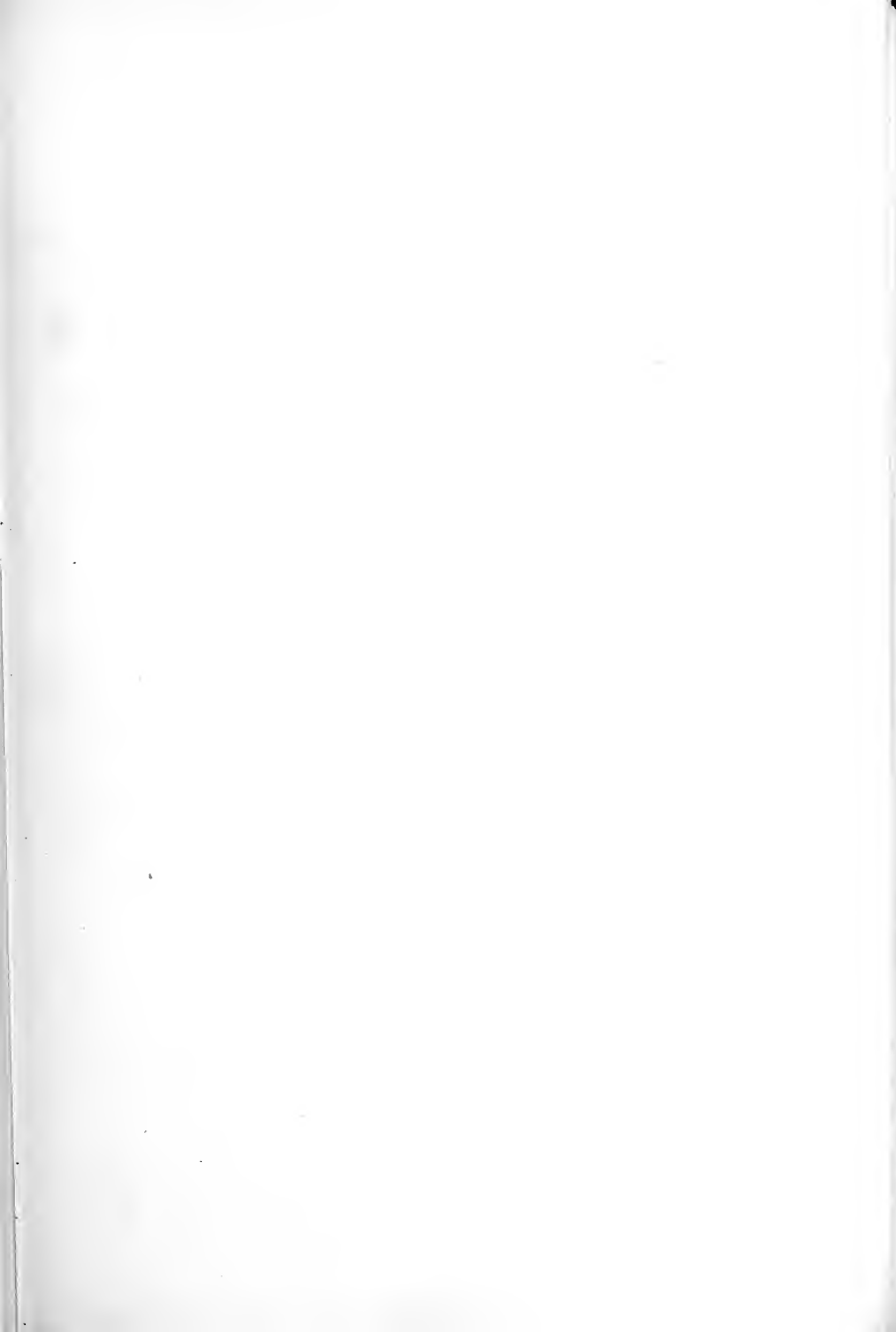
At a meeting of the special town-planning committee of the Portsmouth Corporation on Tuesday the borough engineer was instructed to prepare a preliminary "town plan." The scheme at this stage will not, however, go beyond the outlining of roads and the marking out of sites for public buildings. The preliminary plan will be submitted to a conference of owners.

Mr. J. Stewart-Clarke, of Dundas Castle, and his sisters have made a gift of £20,000 for the restoration of the ruined choir of Paisley Abbey as a memorial to their father and mother. This gift will greatly facilitate the completion of the restoration scheme inaugurated 12 years ago, and partly carried out in 1901-2 under the direction of Sir Rowand Anderson, of Edinburgh. At that time £20,000 was expended in repairing the nave and rebuilding the transepts and the base of the central tower. We published the series of R.I.B.A. silver medal measured drawings of the abbey by Mr. T. Roger Kissell in our issues of March 9, April 13, and June 22, 1888.

matter to his Union. The attention of the Master Builders' Association was called to the matter and complainant, claiming working, but rather than concede the halfpenny the defendants resigned from the Association. There were about a dozen other bricklayers on the work, including a Union man, and they were content with 10d. Henry Winks, the foreman, said that the district rate was 10d. per hour, which complainant accepted, nothing being mentioned about the radius. The Bench were divided in opinion, and by a majority the summons was dismissed.

Mr. Francis Winton Newman and Mr. Walter Tapper, two Associates of the Royal Institute of British Architects, were elected Fellows by acclamation on Monday last, and Mr. Victor Alexandre Frédéric Laloux, architect of Paris, was elected, in the same manner, as Hon. Corresponding Member.

At a meeting of the Burkie Town Council on Monday, the appointment of an engineer to report on the whole water system and sources of the town, with a view to the augmentation of the supply, was made. The final vote lay between Mr. John Chisholm, C.E., Airdrie Water Trust, Airdrie, formerly of Inverness, and Mr. G. Jenkins, C.E., Aberdeen. Mr. Chisholm was appointed by eight votes to three for Mr. Jenkins. The remuneration is to be by two guineas per day and expenses.







THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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- National Silver and Bronze Medal Drawings from the Life. By Mr. Charles S. Dunstan and Mr. Julian Gould.
- St. Lawrence Jewry, Gresham-street, E.C. Details of the Vestry. By Mr. Frank Dawdwell.
- Building News Designing Club. Designs of a Lecture Hall for a Garden Village.
- House in West-avenue, Exeter. Messrs. Ellis, Son, and Bowden, Architects.

"MY BROTHER THE ASS."

This is how St. Francis of Assisi used to speak of himself, perhaps when he was at his humblest and best; and it is how, most of us, once in a while, are inclined to think, of ourselves, if not always to speak. Sometimes our brother, by profession, may be an architect; and yet a shorter word, beginning with the same vowel, would have suited him and others of us so well that few of us can see after a little while how we all came to miss it. Never, perhaps, would the name fit any of us better than when we are most conscious of an asinine desire to kick, and, it may be, of an equally asinine wish not to be kicked in return. It is true that our own fathers and mothers "corrected us, and we gave them reverence," foreseeing the days when, on children of our own, we should be able to pay back long accumulations of what have now become almost a prehistoric debt. Perhaps the juniors of the coming race may give themselves lessons in manners. There is much left for them to learn, and possibly none too much time left to learn it in.

Many things remain to be invented—in spite of Dr. Swift's premature mention of a breed of sheep without wool. This, like other things of the same class, is left to be invented by the donkeys of the future. At present there is no money to be got out of such things; but what the next Parliament—or, rather, Mr. Lloyd George—may decree, who knows? The geniuses of Laputa, if they ever did chance on them, did not have the grace to hand them down to posterity, and the day must soon be here when it will be time for them to be discovered again. The ancient Israelite, who dwelt in a "far-off place, that he might hear the bleatings of the flocks," would have lived with his neighbours had there been no "money in it." It was never a Jewish custom to hear sheep bleat from mere love of the noise, as so many of us seem to do in England. We do not retire from the world simply to hear the bleating of the sheep, but rather to hear the bellowings and booings of the ignorant crowd that take their place, and that are inferior to sheep, because they have some power of judgment, and yet will not use it. How many other noises, neither beautiful nor useful, do we not all give ear to, with as little recompense!

About King Alfred's day a custom seems to have arisen, in forest places, of building churches with walls of oak-trees, split lengthwise, and set up with the split faces next the interior of the church, and the rounded parts externally. At Greensted,

near Ongar, in Essex, such a church still remains; it has lasted since Harold reigned, and can still be seen. Building of the Early Catholic type was in fashion then, when William I. was on the throne, and Harold lately buried outside Waltham Abbey. It was less than a lifetime to A.D. 1066, when the Greensted church was put up as a "temporary" one, to receive for a few days or weeks the body of St. Edmund the Martyr. Then, first "English Norman" appeared; the ordinary R.C. type of church was modified later, as years went on, by successive English changes. First, Second, and Third Pointed styles followed each other through 400 years, till in Henry VII.'s time they all began to seem rather out of date. Peter the Hermit and his men had long since appeared and vanished; there were "wars and fightings" most of the time; the Puritans sprang up, the mason's work grew better and better, and at last grew too good to be true; plastered brickwork came into use, and lath-and-plaster; and, finally the Revolution of 1688, the four Georges, Queen Victoria, and modern conditions. While all this, and a myriad times as much has been going on, the "temporary" church of Greensted has been standing there to show us what we could do in oak before the Norman builders showed us how to do it better in stone. Mr. Pepys, whose Journal is a sort of *Daily Mail* for ten years or more of the 17th century, has told us, (though he could not foresee our ever being able to understand him) all about the departure, in flames, as it were, of Oliver Cromwell and his hosts, and the burning and rebuilding of the City. It was characteristically English; a great opportunity thrown away by neglect; yet a few great things readily accomplished and nearly smothered out of sight by a mass of tasteless vulgarity. It has mostly been done over again, twice or thrice, and we or our fathers have paid its cost—and we or our children will have to pay for it again. The wonder is that England has lasted till now, in spite of "its sons, the asses." Perhaps "its sons, the angels," saved it, of whom, in our department, Christopher Wren was one of the chief.

Hans Anderson, in one of his stories, tells of a voice which said to the world, "Let everything go back to its original owner"—and everything went back. The barking dog no longer imitated his master's voice, the crowing cock forgot the wild Malay one, the horse, and even the donkey, ceased to try and speak like men, and even the bull forgot to roar in quasi-human tones. Why should any sounds belong to any but their original possessors? The bear is less to blame for his bearish-

ness, since he may have acquired much of it by accident from the people who pursued him, and who (of the writers of hunting tales are to be trusted) are not always much better-mannered than their intended prey, or he would be entitled to take back his original boorishness, and to give them their own in place of it. Which of them would then be the ruler animal it is not for us to say, and it is long since a really wild bear roamed the English woodlands. Adam, if we may for a moment think of him as a reality, and not a myth, when he first heard his children crying as Nature meant them to do, perhaps could detect no trace of the vox humana amongst them. But Adam is gone, if he ever was here; and whatever theologians may infer, hardly anyone else has even cared to say that Adam was an ass.

TOWN PLANNING FOR TWENTY-FIVE CENTURIES.

It will be very easily understood that considerable difficulties lie in the way of obtaining many instances of town planning until we come to fairly modern times, the manifest reason being that in almost all cases the plan of a town was rarely set down before building; towns having in almost all cases gradually developed from the settlement of one or more cottages, till by the addition of further habitations a hamlet became a large town. We have, however, certain details of the planning of three towns. One of these is known to have existed from an unknown period more than six hundred years before the Christian era. The planning of the second town dates from the Middle Ages, and the planning of the third belongs to comparatively recent times. A consideration of the details of the plans of these three towns will probably show us that whenever a town has been planned in any age it takes a particular and an invariable form.

The plan of the most ancient of the three towns with which we shall attempt to deal may be seen in the map of Pompeii, published by Richter and Co. in 1851. In this map we see that the plan of the city exhibits the main streets set parallel to each other, and crossing each other at right angles. Mr. Mau, in his history of Pompeii, shows us very clearly that the town was in existence before the sixth century B.C.

We may now turn to the planning of an English Mediaeval town, that of Wych-de-la-Saun, in Sussex. Very rarely in the Middle Ages was it possible or useful to plan out a new town. In the thirteenth century, however, it became necessary to provide a new town in a new district, and

existing population. This necessity was occasioned by the destruction of the town of Winchelsea by the encroachments of the sea. To-day we must therefore realize that there are two Winchelsea's—one a town submerged a mile out to sea, and the other the new town planned out as a whole at one time by one mind, and by several in collaboration. New Winch is as if we may speak of the present and not the town, was planned and built in a year 1257. At the time of the plan was the ground by authority, the district in which the town was to be built was known as Ham. The inhabitants, however, when taking possession of their new home, changed this name to that of the old town and called it "Winchelsea." We take the spelling from one of the old maps in the charters of the Canon Priory. What advantage was taken of this almost unique opportunity to plan out a whole town, and what was the special feature of the planning in the minds of those by whom the work was done? We shall see that the opportunity afforded caused a remarkable departure from the ordinary arrangement of an English town, and that the outcome of ideas resulted in the adoption of a plan with one special and predominating feature. The new town of Winchelsea is said to have been planned after the pattern of the old town. Such may have been the case, but it is extremely improbable. All English towns with rare exceptions have grown bit by bit from hamlets, and the result is exactly what would be looked for—namely, a series of streets running in many directions, and in lines both straight and curved. The Ordinance map of Winchelsea, published in 1875, shows very clearly the thirteenth-century plan of the new town. In it we see the streets running parallel to each other, and crossing each other at right angles, on virtually the same system as laid down at Pompeii many centuries before.

The newly built town of Winchelsea was planned in about forty squares, called "quarters." In Cooper's "History of Winchelsea," we find some interesting references to these quarters taken from a document of the time of Edward I. We read of a first street or highway in which were the first, second, third, fourth, and fifth quarters; a second street or highway contained the sixth to the eleventh quarters, and so on to the eighth street or highway in which were contained the thirty-sixth to the thirty-ninth quarters. The Ordinance map of Winchelsea does not show now any such appellations, the streets bearing only ordinary names, such as Rich-street and Castle-street.

We may return to the planning of this last of our three towns, the modern city of New York. In the map of the city published in 1902, by Rand, McNally, and Co., in their Business Atlas, we see again the same particular features as were apparent in the plans of the towns of Pompeii and Winchelsea. Again we see the streets running parallel to each other, and crossing each other at right angles.

To sum up, Pompeii, we have seen, was in existence 600 years B.C. Winchelsea was planned in the Middle Ages, and the plan of New York must have been set down in the last ten years. Yet we see all these towns laid out on virtually the same plan, namely, one in which the streets are all straight, and where they run parallel to each other and across each other at right angles.

The Westminster Town Council have approved a plan for the extension of the public baths at a cost of £2,850. The scheme will provide 26 shower-baths for ladies, with the necessary waiting-rooms and lavatory accommodation, "solarium" bath-rooms, with separate lavatory accommodation, and a store for 120 cycles.

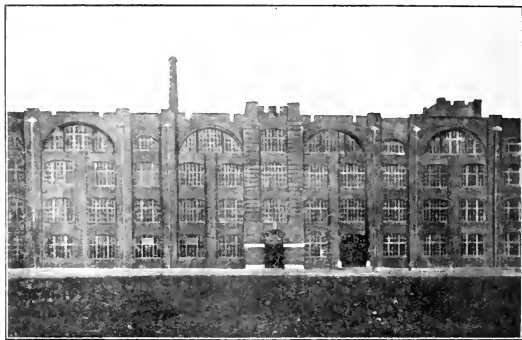


FIG. 1.

REINFORCED-CONCRETE BUILDINGS.

By WM. G. SHIPWRIGHT, Lic. R.I.B.A., M.C.I., and Chartered Building Surveyor (by Exam.)

ORCHESTRELLER'S FACTORY, STORES, AND OFFICES AT HAYES.

(Walter Cave, F.R.I.B.A., Architect.)

This scheme, which includes two large blocks of factory and office buildings, a drying or seasoning room for timber, and a large engine-house, is selected for illustration partly on account of its extensive and comprehensive character as a warehouse, factory, and office block, but more

as a facing. The whole of the structural work is executed in reinforced concrete, the weight of floors, roof, and construction generally being supported on reinforced-concrete columns. Figs. 1 and 2, together with the plans, Figs. 3 and 4, will convey some impression of the magnitude of the two principal blocks, commenced respectively, under separate contracts, in 1900 and 1910, and recently completed, and also indicates the general scheme of design and construction.

The arrangement of the beams and columns on all the floors in the building erected under the first contract is shown in this diagram, ground-floor plan, Fig. 3.



FIG. 2.

particularly by reason of the inclusion of some special features in the scheme necessitating the provision of ingenious and instructive items in reinforced-concrete design and construction.

The larger block shown in elevation in Fig. 1, is devoted to the extensive piano-forte manufacturing works of the company, whilst the smaller block, shown in Fig. 2, provides accommodation for works in connection with the roll-music preparation.

The keynote adopted in designing the whole scheme is the erection of reinforced-concrete skeleton structures with an outer casing of brickwork merely employed as

from which it will be seen that the skeleton frame of reinforced-concrete beams and columns has been constructed between the brick piers on the external wall, with a double row of columns traversing the centre of the building longitudinally whilst the side columns are recessed into the brick piers. The interior views, shown in Figs. 5 and 6, are taken on opposite sides of the room on the first floor. The main beams on the ground and first floors, which have a span of about 29ft., have been constructed to the detail shown in Fig. 7 and the enlarged cross-section, Fig. 8. The



Fig. 5.

beams, which are 21in. deep and 8in. wide, are provided with four heavy rods as tensional reinforcement, the upper pair of rods having locking stirrups or hangers at

heavily reinforced, to sustain a slightly increased loading. This detail also shows the dual tensional reinforcement and shear hangers employed in the 12in. by 6in.

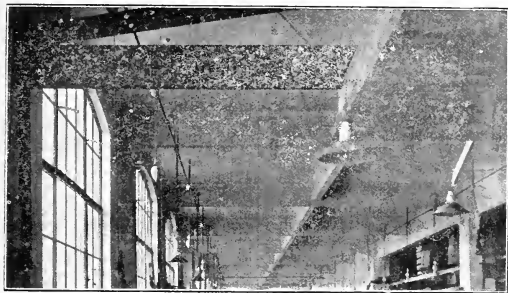
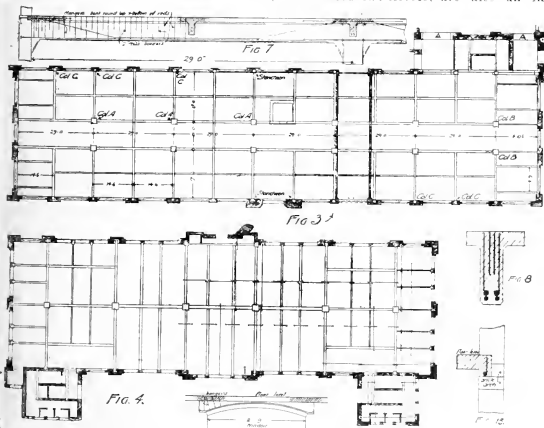


Fig. 6.

6in. intervals, and being turned diagonally into the upper part of the beam at a distance of 8ft. from the supports, to secure, in conjunction with the stirrups, an effective shear resistance in the beam.

cross-beams, running between the main beams and the external walls, which have an average span of about 18ft.

The arched lintels, which are constructed as balanced cantilevers, are also an in-



A similar type of beam, illustrated in Fig. 9, has been used in the upper floors. In this case, however, the beam is 22in. deep and 8in. wide, and somewhat more

interesting detail—shown in Figs. 10, 11, and 12—with an enlarged cross-section in Fig. 13. The position and reinforcement of the intersecting cross-beams, and the

arrangements made at the junction of the rods, is also shown in these details. The reinforcement of both cantilever beams is formed by a single rod, and a rod at the extreme ends, and passed over the reinforcing rods of the intersecting beam. The shape of the arch heads to the openings lends itself particularly well to the method of construction, giving the greatest depth at the springing, where the bending stress on the cantilever attains its maximum, and the stirrup connection between the two parts of the rod secures a good shear resistance and thoroughly homogeneous piece of work.

It also appears that this method, which provides a distinct break in the reinforcement at the narrow part of each lintel, will to a considerable extent obviate the cracking which often occurs in cases where continuous rods of considerable length are used, an effect probably due to slight shrinkage, which usually occurs in the concrete during the process of setting.

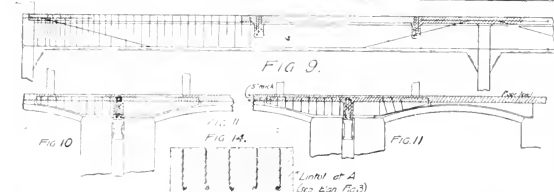
Fig. 14 shows a section of the lintel employed to bridge the opening at A in the plan (Fig. 3); the total span is 10ft. in the clear, and the lintel, which is 2ft. 6in. in width, is formed in concrete 12in. deep, with five stout tension-rods at 6in. intervals, each rod being supplied with a series of hangers.

The columns employed to carry the floors of the three stories and the roof are shown in detail in Figs. 15 to 26. The central columns marked A are shown in two sections (Figs. 15 and 16). The portion supporting the roof above the third-floor level is 9in. square, with quadruple reinforcement disposed at the angles, and linked together at 9in. intervals, an enlarged section being given in Fig. 19. The size is increased to 14in. square below the third-floor level, and a larger type of rod is employed in this section, as shown in the enlarged detail, Fig. 21. The column at the first-floor level is 18in. square, with eight vertical rods linked by both circumambulating and cross rods at 9in. intervals, in the manner indicated in Fig. 23, and similar sections are employed on the ground-floor where the columns are 22in. square (Fig. 24).

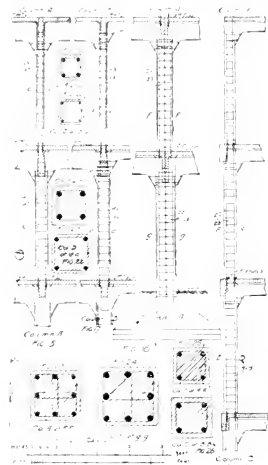
The foundations for this work are of a particularly heavy type, and couple the loads received from each pair of columns by means of the transverse beams shown in Fig. 27, which, it will be seen, are constructed to provide resistance on this basis across the span of 10ft. between the centers of pressure of the two loads, the remaining 5ft. at either end being constructed in cantilever form.

A close lattice reinforcement of small rods at 3in. intervals is provided to distribute the load over the base area of 200ft. super, an intermediate distributor, 16ft. in area, similarly formed, being placed centrally in the concrete bed beneath each of the concentrated loads, and slightly above the secondary longitudinal reinforcement, which is 8ft. long and 4ft. wide in the centre of the span. Bonding-rods are provided at 6in. intervals, linked to both rods in the tensile reinforcement of the beam portion, the remainder of the shear members being linked to the lower rods at 8in. intervals. Especial care was taken in securing a true foundation for these columns, and with this object an additional precaution was taken, by providing a 6in. bed of 1:2 concrete below the foundation proper, which was constructed in 5 ft. of concrete in a trench with the whole of the structural work in this block.

The end pair of columns marked at B in Fig. 3 are shown in detail in Figs. 17, 18, with enlarged sections (Figs. 20 and 22) illustrating respectively the base at the third- and second-floor levels. A section

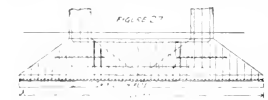


design and I saw that used in columns A - 9 1/2 in. and 11 1/2 in. square has been employed in order to harmonise with the other columns in each floor level, and the necessary adjustment to the requirements



of a lighter load has been made by employing a smaller type of rod.

The columns employed in the wall chases, marked C in Fig. 3, are shown in detail (Fig. 18), and the enlarged sections (Figs. 25 and 26) show respectively the construction of the first and ground-floor levels.



The reinforcement consists of four rods disposed at the angles, with links at 9 in. intervals throughout the entire height.

The jointing between the respective sets of rods in these columns is an interesting and useful piece of construction. A 9 in. lap has been all well in all cases, and the splayed fillets cast in the solid concrete at the top of each section provide a substantial bearing for the girders. These fillets have a dual transverse reinforcement running in most instances right across the column, with split and forked ends. Starchamfered arrises were the type of finish adopted throughout, and the work presents a plain and neat appearance completely in keeping with the purpose of its construction. (To be continued.)

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association was held on Monday evening at 18, Tufnell-street, S.W., the chair being occupied by Mr. G. C. Horsley, F.R.I.B.A., the President. Mr. H. A. Hall, Hon. Secretary, announced that the next spring visit would take place on Saturday, the 27th inst., to the new Polytechnic in Regent-street, Messrs. C. F. Mitchell and F. T. Verity, architects; members to meet at the building at 2 p.m. The President stated that Mr. Theodore Fyfe had been elected to serve as a member of the Council. He also proposed a vote of thanks to Mr. Noel Koch for kindly presenting to the library a book, entitled "Vacuum Architecture," by Professor Otto Wagner, together with eight volumes of "Academy Architecture." This was agreed to, as was a further vote of thanks proposed by the President to Mr. W. H. Ward for the presentation of six volumes of "Academy Architecture" to the library.

ALFRED STEVENS.

Mr. E. F. Strange gave an address on the training, designs, great works, and influence of Alfred Stevens as a running commentary to an exhibition of a series of admirable slides, chosen, for the most part, from the collection in the Victoria and Albert Museum. He explained that such of the designs and drawings as are not exhibited in the galleries can be seen on application at the students' room, No. 71, of the Department of Engraving, Illustration, and Design at the Museum. The lecturer first gave some details of the early history of Stevens, who was born in 1817 at Blandford, being the son of a house painter, and also corrected some of the statements of Professor Stansius in regard to Stevens's visit and stay at Florence. He showed some sketches and produced evidence to prove that Stevens competed not only in the second fresco competition for the Houses of Parliament, but also in the first competition, his subject being Milton's "Repulsion of Sin and Rebellion from Heaven." The lecturer dealt with the evidence given by Stevens at the inquiry with regard to the School of Design, which emphasised the importance he attached to form. In 1847 Stevens obtained the commission to decorate Dyrshook House, and the work was certainly amongst the noblest examples of mural decoration that they had in this country. He also designed some beautiful gates for the Geological Museum in Jermyn-street, but the splendid project never matured. Mr. Strange showed sketches and designs of Stevens for such things as rosewater sprinklers, candlesticks, Indian knives, etc., and called attention to the favourite device of the twin figures around the stem, which were afterwards carried out with such effect in the design for the 1851 Exhibition Memorial, but which, unfortunately, were never accepted. In 1850 Stevens went to Sheffield and designed fireplaces, grates, etc., for Messrs Hoole and Sons, some of which caused a sensation at the time, and another of his activities was the designing of majolica ware. In 1856 he was entrusted with the interior decoration of Bath House, and in 1857 he was elected to the *Art Journal* of the time would seem to show that Stevens was not such an unknown man then as many people supposed. Not being an American citizen, he (the speaker) had not been able to get admittance to Dorchester House, and it did seem a pity that there were no better opportunities for the public to see such work. Stevens was asso-

ciated with Digby Wyatt in the design of a pavilion for Queen Victoria at Paddington Station, but for some reason or other was carried out. At South Kensington they had a plaster model of the famous fireplace at Dorchester House, and he looked on the figures in that as the second best piece of sculpture of Stevens. At the same time the fireplace conveyed the impression on him almost of discomfort, although the execution was perfectly marvellous. Mr. Strange showed a number of studies for the colour decoration of the interior of the dome of St. Paul's, although he confessed that he did not know whether the scheme would have been quite effective in that great and dusky cup. The lecturer proceeded to give a summary of the events which led up to the second competition for the Wellington Memorial at St. Paul's, when Stevens only got a premium of £100. Looking at the model which we had of the memorial, he was bound to say that the completed memorial lost something in the comparison. Many adverse criticisms were made of Stevens's design at the time, and one thoughtful criticism said that if placed in the market square of a country town the memorial would be the pride and glory of the place. He was rather inclined to agree that the memorial would have looked better in the open air, or if it had been left in the Consistory Chapel at St. Paul's, where it was first placed, and which it was the intention of Penrose to have made a Wellington Chapel, with Stevens's work in the centre. In conclusion, Mr. Strange said that a comparison of Stevens's work with that of Michael Angelo was inevitable. Stevens worked under different conditions. Michael Angelo worked amongst a community of artists in the most glorious period of Italian art, whilst Stevens was Early Victorian. If ever there was a voice crying in the wilderness it was that of Alfred Stevens. He lived for his art alone; but not unworthily. After Michael Angelo's "Lorenzo" they might look at Stevens's superb group on the Wellington Memorial.

Sir C. Holroyd, Mr. D. S. McColl, Mr. William Strong, A.R.A., and Mr. W. R. Colling, A.R.A., took part in the discussion which followed the reading of the paper, and for which a hearty vote of thanks was accorded the lecturer, and all spoke in high and appreciative terms of Stevens's work.

THE ARCHITECTURAL ASSOCIATION SKETCH BOOK FOR 1911.

Seventy-two capably-executed plates to folio size for one guinea, printed as they are on plate paper, and accompanied by many excellent detailed drawings of Medieval churches and Late Renaissance Domestic work, scarcely can fail to meet with ready purchasers among architects and students who value reliable records of historic buildings, chosen by reason of their beauty and suggestive character. The Editor, Mr. A. A. Smith, the Book are Messrs. C. C. Brewer, Theodore Fyfe, W. Curtis Green, and H. A. Hall, all of whom rank as well-known draughtsmen who have personally enriched previous volumes of this long-established sketching serial. The frontispiece is quite unlike anything of the kind issued before in the Sketch Book, so far as we remember, and we have a set from the commencement. It represents a relief of the Head of Sety I., n.c. 1200, from Abydos, in Upper Egypt, drawn by Mr. Walter S. George with no inconsiderable dexterity appropriate to a graceful pose. Mr. Fyfe has drawn the lines of the border having the merit of not detracting from its simple effectiveness. From Leicestershire, Mr. Cecil A. L. Sutton brings three plates of Bottisford Church (1400), with its very irregularly laid out plan, hardly any part being rectangular, thus being very different from the better known churches in consequence. The spire is an excellent example, but we doubt if the long chamber north of the chancel was always a vestry, as it is now, few old churches having any sacristies at all. Edlington Church presents an exceptionally good subject, and it is done justly by Mr. F. W. Howarth in the graph, for which he won the R.I.B.A. Silver

medal last year. We reproduced several of his sheets at the time. They here appear to a much larger scale. In the same competition Mr. F. Dawdeswell came strongly to the front by his excellent set of drawings of St. Lawrence Jewry, Gresham-street, E.C., and he has done well to send them for the folio volume, which we complete so nicely produced. We complete our own photographic from them by the double page plate appearing in the BUILDING NEWS to-day. The broached spire of St. John Baptist Church, Keystone, Hunts, measured by Mr. J. H. Hubert Fraser, Dugby, Leicestershire, is a very fine example with the tower of 14th century date and lovely west door of unusual character. Hawksworth's Church, Spitalfields (1714-20) is fully illustrated by Mr. W. J. Durnford, who appreciates the style by adapting his draughtsmanship to it, and this is not always the case. The House of the Nine, North-Holt, Leicestershire, 1760, is not so well known as many other Tudor dwellings, and, therefore, Mr. L. M. Gutch had an advantage when he selected this building for his capital drawings. The sheet of the roof framing showing the timbering in diagrammatic perspective, is particularly good, and so are the drawings of the interior. The drawing of Risley, 1760, by Mr. T. Cecil Holt, has appeared in our pages from this same drawing of this Derbyshire example of English refinement in façade treatment, and its details, not given before, are here added. Mr. J. B. F. Cooper's drawings of the 13th-century spire and belfry of St. Mary's, Stamford, and of the tower of St. Hubert's, Swineshead, contemporary church, likewise his sheets of the screen, Tibrook Church, in the same county of Huntingdon, add to the value of the folio, in which one of the best perspective sketches is Mr. Cooper's view of the tower of St. Cuthbert's, Wells. Le Vieux Logis, at Angers, is a most interesting and beautiful subject for the pencil of Mr. Henderson, and we are also to see the large reproduction of Mr. Geo. P. Hopworth's truly wonderful elevational measurement of the florid façade of Notre Dame Cathedral, Rouen. We gave the same study as a double-page plate here its figures to double-folio size, and the Senior Mr. Palmer Jones, of an indefatigable hand, shirking nothing, and expressing all so well, too. Exceptional subjects, like the Durkâa Bet Kamel et Din, Cairo, from whence Mr. William J. Jones also shows a typical house near the Mosque of Ibn Tulun, cannot be passed without notice. Mr. W. J. Palmer Jones gives a correspondingly curious sketch of the Mosque Doorway, Cairo. The Monastery of Der Surian, Wady Natron, Lower Egypt, shown by a completed plan to scale, and elucidated by photographs, also the measured drawings of the domical Church of Al Adea, in the same monastery, are of particular interest, and are well illustrated by Mr. J. Jones's detail drawings of 16th-century Egyptian elaboration and design. The volume ends with the same contributor's pencil study of the Temple of Thotmes III, Medinet Habu, Egypt, of the XVIII. Dynasty, B.C. 1568-1449. These subjects give special point to the individuality of the frontispiece already referred to, and contrasted with the standard of the A.A. Sketch Book maintains its standard of value and merit.

THE R.I.B.A. EXAMINATIONS.

THE FINAL: ALTERNATIVE SCHEME OF TESTIMONIES OF STUDY.

The alternative scheme of Testimonies of Study for the Final Examination will come into operation at the option of the candidates in November next, and after the end of the year 1913 the existing Testimonies of Study for the Final Examination will be abolished. Six alternative Problems will be set by the Board of Architectural Education each year, and candidates for the Final Examination must submit designs in answer to at least four of these problems. These alternative problems will be published twice a year, three in February and three in July. This is done for the first time for candidates, but it must be distinctly understood that the time for sending in the designs

In answer to these problems is strictly limited. Thus the designs for Subject I, must be sent in to the Secretary RIBA or to the secretary of the allied society for the district in which the candidate is working by February 29, 1912; those for Subject II by April 30, and those for Subject III, by June 30. (This time will be extended for students in the Colonias; see dates following list of subjects below.)

The subjects for the first half of the year 1912 are as follows:—

SUBJECT L.

(a) A large Monument, to commemorate King Alfred's refounding of London one thousand years ago, for a public place in the City, not to cover more than 500 superficial feet.

(b) A Terrace of Five Houses, 20ft. frontage, each six stories high, including basement, facing the parade of a small watering-place. Detailed construction of one house to be given and a design for the complete terrace.

Drawings required to be $\frac{1}{8}$ in. and $\frac{1}{4}$ in. scale.

SUBJECT II.

SUBJECT II

(a) A large Monument to an Explorer, to be placed against the wall of a public building.

Shaded drawings required to be $\frac{1}{2}$ in. scale.

(b) A Cloister with external entrance gate way or tower to a collegiate building round a courtyard 100ft. square.

Drawings to be $\frac{1}{2}$ in. scale, with $\frac{1}{2}$ in. details of the complete construction of one bay.

SUBJECT III

(a) A Detached Ballroom to a large country house, to be connected with the house by a covered way. The decorations should be specially considered.

Shaded drawings to $\frac{1}{2}$ in. scale, showing both interior and exterior, and a detail of decorations.

(b) A Landing Stage to a river or lake, with a restaurant.

Drawings to show complete construction
 1/4 in. scale and 1/2 in.

DATES FOR SUBMISSION OF DESIGNS IN 1912

	Subject I.	Subject II.	Subject III.
United Kingdom	Feb. 29	April 30	June 30
Johannesburg	April 30	June 30	Aug. 31
Melbourne	May 31	July 31	Sept. 30
Sydney	May 31	July 31	Sept. 30
Toronto	March 31	May 31	July 31

THE SUBJECT OF CONSTRUCTION AND SHORING

The Board of Architectural Education has received a communication from the Examiners to the effect that many of the candidates at recent examinations have shown weakness in the subject of construction in general and shoring in particular. They would, therefore, direct the attention of the masters of the architectural schools to the importance of impressing on their students the necessity of studying more carefully this important branch of architectural education.

THE TENDENCY OF RECENT MODIFICATIONS OF THE LANDS CLAUSES ACTS.*

By FRANK W. HUNT.

(Concluded from page 59.)

Under the Act as first obtained all interests between the shareholders and the company were purchased. Extension of time to pay less was purchased. Subsequent occasions have been authorised on two extension of time, although on the last occasion objection was taken in the House of Commons to the proposal. I do not think any further extension of time is likely to be applied for, but any interests which do not fall in soon will have to be acquired under the Lands Clauses Act. So far as I can see there is nothing to prevent my adopting a course by which the interests which had indicated to the Select Committee of 1894; but if there is a doubt under existing legislation, I should not anticipate any hesitancy on the part of Parliament in granting such modification as

the more recent Acts, and the compensation schemes authorized by them, as shown in the Departmental Report on new road proposals, is not only to form a compensation fund, and to provide a means of distributing it to people who would be deprived of their property, but is an important part of the recent Act relating to the improvement of London.¹ Subject to the provisions of the Act, the Council may exercise the power to use all or any of the lands comprised in deposited plans and deposited books, or the deposited book of reference for any time and require for the purposes of the improvement of the highway, the improvement of the houses and buildings adjoining or near the highway, or for the purposes of the improvement or for any other purpose of the Act.² The last phrase of this extract embodies the most recent amplification of the clause. It is interesting to note in the Development and Road Improvement Act, 1934, that the Road Board, where it is formed, has approved a proposal by the Board to construct to new road, may acquire the land requisite for the formation of the road, and in addition may acquire land on either side of the proposed road within 220 yards of the middle of the proposed road. The object of this provision was doubtless to enable the Road Board to recompense the owners of the land comprised in the formation of the thoroughfare by securing the enhanced value converted in to land immediately abutting on the new road, although there is included in the Act a modified application of the principle of betterment to secure the same result by different means. So important did Parliament consider the principle of taking only so much as was required for the undertaking that the groups of sections of the 1845 Act continued special provision as to the disposal of surplus lands. A period was set to operate, if the special Act prescribed no such period, within which the surplus lands were to be sold; and, if no sale within the general or special prescribed period took place, the surplus property vested in the owner, subject to the provisions of the special Acts, almost without exception specifically exclude this portion of the 1845 Act, as might have been anticipated from what has been instanced above. During the last few years nearly, if not quite, the whole of the great railway companies have obtained special powers with reference to surplus lands, more potent than those obtained under the extension of the ten-year limit from the date of the completion of the works. Even so long ago as 1872 some of the railway companies obtained relief in that direction. In a recent session several of the larger railway companies operating in London obtained complete exemption from the operation of this section. For example, the Midland Railway Co. in 1909 obtained powers providing that the company shall not be required to sell or dispose of such lands, but might retain, hold, or use, or lease, or otherwise dispose of the same. As a modification of the principle, the Baker Street and Waterloo Act, 1906, contained provision excluding Section 127 and enabling the company to hold over the station and sell or lease the same. In one case at least the modification took the form of enacting that the surplus land of the company should not be subject to the provisions of the Land-Clauses Act.

(3) The basis of compensation under the Land Clauses Acts is the value to the owner. "When Parliament gives compulsory powers and provides that compensation shall be taken for the loss he sustains, it is intended that he shall be compensated to the extent of his loss; and his loss shall be tested by what was the value of the thing to him, not by what will be its value to the person acquiring it." This theory of the value to the owner received considerable emphasis in the case of the London Property Development Corporation³ decided in 1883, although four years earlier the Court had upheld an award where the arbitrator had

* Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Jan. 8, 1912.

taken into consideration the special value of the land among the purposes for the purpose of which it is to be used. In 1901 the House was specially satisfied that the Courts held that the natural adaptability of land for a special purpose is not only a proper matter for consideration, but before a claim could be made, it was excluded it must be shown on the facts that there is no reasonable possibility of a market for the land in question apart from the particular scheme under which it is taken. Recent legislation of a special class has modified this position, so that compensation should be based upon the value of the land. Legislation relating to insanitary areas has always made special provision on this head. The original Act of 1875 fixed the basis of value at the market value, due regard being had to the nature and condition of the property. This was thought not sufficiently stringent, and certain further stipulations as to interests created and works executed after the date of the advertisement of the scheme were imposed by the amending Act of 1882. The alleged great cost of clearance schemes was still the subject of much discussion, and a very strong and persistent commission was set up in 1888. The report of this Commission formed the basis for the consolidating and amending Act of 1890. The basis then set up for the value of property taken in connection with an insanitary area is very clearly defined. It is the fair market value of the property at valuation, thus excluding the effect of special value to the owner. The arbitrator must consider the cost of repair and probable duration of the buildings, and must disregard any additions to, or improvement of, the premises made after the date of the advertisement, and the rental is enhanced by the premises being used for illegal purposes, or overworked to an extent dangerous to health, these considerations must be disregarded and a fair rental value assumed. Further, if property is not in reasonably good repair, the arbitrator must deduct the amount necessary to put it in a proper condition; and in certain cases the value of the property as a site plus the value of old materials. Under the Act of 1895, the value is the value of the interest as existing at the date of service of the notice to treat, and early decisions settled that the nature of the interest is ascertained by the service. "I think that the valuation ought to be made as at the time the house was about to be taken, and should be made of the exact interest which the plaintiff would at that moment have had, assuming that the house had not been taken." The scheme of the Act I take to be this: That every man's interest shall be valued *veluti in statu quo* just as it occurred at the very moment when the notice to treat was given." ("Peuney v. Penny." In practice the nature of the interest is fixed by the service of the notice to treat, not the value of that interest is assessed at the date of the notice, on the ground that the claimant cannot have possession and compensation for the same period. After the service of the notice to treat the owner cannot lawfully deal with his interest, and an interest created or enlarged by him after the service of the notice is not the subject of compensation under the Lands Clauses Act. A long series of cases supports the latter part of this proposition; but it is to be observed that it is the interests created after the service of the notice to treat which are not to be taken into the parties to compensation in respect of the notice. The first part of the proposition rests upon a decision in 1860, which was followed by a notice to treat served by a public company on a land owner so far as it related to a contract that the owner could not afterwards part the property and receive compensation. It was at much more than a mere question of law, but it is difficult to find a case in which a claimant has been refused compensation on this ground. The final effect, however, is only applied to the claimant's interest in property, in such a way as to ensure that the owner who has given the notice to treat cannot afterwards receive compensation in respect of the interest which he has given up. It is not, as it seems to be, that the owner has sold to a purchaser."

Accepting this decision to represent the correct law on the subject, the Housing Act, 1890, constituted a departure from the general practice under the Lands Clauses Act by providing that when assessing compensation in respect of property compulsorily acquired under Part I of that Act, there should be included in the valuation any sum in respect of any interest acquired after the date of the publication of an advertisement stating that the improvement scheme had been made, so as to increase the amount of the compensation to be paid for the lands. This statutory provision has formed the basis of similar provisions in the Local Government Bill, particularly for London, and I think I may say that from 1895 to the present time every Act relating to the purchase of property for public purposes in London has contained a clause on the following model: "In settling any question of disputed purchase money compensation under this Part of this Act the Court or person settling the same shall not award any sum of money for, or in respect of, any improvement, alteration, or building made or erected, or for, or in respect of, any interest in the land created after the day of publication of the special notice, or such person, on the improvement, alteration, or building, or the creation of the interest in respect of which the claim is made was not reasonably necessary, and was made or created with a view of obtaining or increasing compensation under this Act." The date inserted in the clause is generally the date when the proposals were first made public, although in a case before a Committee of the House of Lords the date of the Parliamentary Notice was inserted in lieu of the date when the scheme was first made public. A similar clause is also included in Bills introduced by the Board of Education to confirm Provisional Orders made under the Education Acts relating to the purchase of sites for schools in London. The case referred to by the President in his inaugural address, where powers were vested to sterilise for compensation purposes any enhanced value of land arising from public works executed within five years before the service of the notice to treat, may have reference to circumstances somewhat similar to those related above. I have not met the case in question; but the principle is not unknown in the practice of Parliament in the question of the purchase by a public authority of the water companies of London had been a subject of much consideration and public discussion for years. Parliament repeatedly inserted in Acts obtained by water companies clauses sterilising the value of the powers for compensation purposes of which the following is an example: "If the undertaking of the company be purchased within seven years of the passing of this Act otherwise than by agreement by any public body or trustees, nothing in this Act contained shall authorise the company to claim any compensation, or to make any claim in respect of any advantage conferred on them by, or resulting from, the passing of this Act. Provided that in the event of such purchase the company may bring into account the actual amount of any capital expenditure made by them in the improvement of the power of the Act, but no claim at least the provisions of this Act contained did not appear. The compensation is to be assessed in respect of the damage sustained by the owner, irrespective of any advantage he may otherwise obtain from the carrying out of the undertaking for which payment is to be made. The principle was applied in 1896, a jury found that, notwithstanding the operations of a company put an owner to expense in rebuilding a wall, the damage he sustained was not owing to the enhancement in the value of his property by the company's operations, and the Court supported the verdict. The principle of enhancement, or a set-off of advantages obtained against compensation claimed for damages, appears first to have been embodied in the Housing Acts. A paragraph in the Report of the Royal Commission on Housing gives the history quite shortly. "In this country the principle of betterment has been to a small extent adopted in the Acts of 1879 and

1882. The former provides that an arbitrator is to take into account, in estimating the amount of compensation to be given to an owner, any additional value given to the adjoining property of the same owner by reason of the destruction of his house, which is in a bad condition. This, to some extent, was the principle of ratum et contrarium regards the same owner. Then, in a clause in the Act of 1882, a provision was introduced that where an obstructive building is taken for the purpose of improving the adjacent property, the improvements given to the property may be charged upon it in the estimate of ratum et contrarium. These were embodied definitely in the Housing Act of 1890, Part II., relating to the removal of an unhealthy dwelling-house as contrasted with unhealthy areas dealt with under Part I. Section 41 provided that in all cases in which the amount of any compensation is in dispute this part of the Act is to be settled by arbitration. (1) (2) (b) The arbitrator shall have regard to, and make an allowance in respect of, any increased value which in his opinion will be given to other dwelling-houses of the same owner by the alteration or modification by the local authority of the building. Under Section 38 of the same Act, relating to obstructive buildings, the benefit of an owner of any other building is taken into account; but the total amount of such enhancement to be recovered by the local authority is not to exceed the compensation to be paid to the owner for the removal of the obstructive building. This provision was not affected by the 1909 Housing Act. Provisions embodying the same principle were included in the Light Railways Act, 1896, where the proviso to Section 13 is as follows: "Provided that in determining the amount of compensation the arbitrator shall have regard to the extent to which the remaining and contiguous lands and hereditaments belonging to the same proprietor may be benefited by the proposed light railway." Again, in the Development and Road Improvement Act, 1909, the special provisions as to the amount of compensation to be paid to the owner in Schedule I contain the following: (c) In determining the amount of any disputed compensation under any such order . . . the arbitrator shall have regard to the extent to which the remaining and contiguous lands and hereditaments belonging to the same proprietor may be benefited by the proposed work or road for which the land is authorised to be acquired by the undertakers." A much wider question arises when works of improvement are undertaken by a public authority. The 1894 Committee of the House of Lords was appointed to consider and report whether "in the case of improvements sanctioned by Parliament and effected by the expenditure of public funds, persons, the value of whose property is clearly increased by an improvement, can be equitably required to contribute to the cost of the improvement, and if so, after taking into account the evidence, reported that: "(1) The principle of betterment, in other words the principle that persons whose property has clearly been increased in market value by an improvement effected by local authorities, should specially contribute towards the cost of the improvement, is in itself just, and such persons can be equitably required to do so. . . ." The Committee laid down certain rules, the Standing Orders of the House were subsequently amended, and in respect of certain Bills then before the House a clause was settled embodying the Committee's recommendations. It has since appeared in a limited number of Acts, principally relating to London. The costs connected with the elaborate procedure are very heavy, and only in very special circumstances has it been found financially advantageous to apply the principle. The question has been conducted by betterment accrued, the whole of the property, viz., that of the south side of the Strand, was excluded by a Committee of Parliament from the betterment area. In quite a large number of recent private Acts obtained by municipal authorities the same principle has been applied in several cases in a form differing from what one may call the standard clause,

of the witnesses on the same side. There must always be a certain proportion of especially important cases where no fixed limit to the number and character of the witnesses can be placed; but in many ordinary cases, limitation in the number of the expert witnesses might be considered justified. But the complete exclusion of the expert witness would, however, give rise to consideration of a different order. Another class of statutory enactment where a claimant may be affected in the costs he can recover arises under a section of which the following is an example:—"The amount of person to whom any question of disputed purchase money or compensation under this Act is referred shall, if so required by the Council, award and declare whether a statement in writing of the amount of compensation claimed has been delivered to the Council, by the claimant giving sufficient particulars and in sufficient time to enable the Council to make a proper offer, and if they or he shall be of opinion that no such statement giving sufficient particulars shall have been delivered, one-half of the costs of the arbitration, or, as the case may be, one-half of the costs of the proceedings of the sheriff, including the cost of summoning, empanelling, and returning the jury, and of taking the inquiry and of recording the verdict and judgment therein) shall be defrayed by the person with whom the Council shall have such question, and the remaining half shall be defrayed by the Council, anything in the Lands Clauses Consolidation Act, 1845, to the contrary notwithstanding. Provided that it shall be lawful for any judge of the High Court to permit any claimant after seven days' notice to the Council to amend the statement in writing of the claim delivered by him to the Council in case of discovery of any error or mistake therein, or for any other reasonable cause, such error, mistake, or cause to be established to the satisfaction of the judge after hearing the Council if they object to the amendment, and such amendment shall be subject to such terms enabling the Council to investigate the amended claim statement, make an offer of costs, and as to postponing the hearing of the proceedings, the costs of the inquiry and otherwise as to such judge may seem proper under all the circumstances of the case. Provided also that this section shall be applicable only in cases where the notice to treat under the Lands Clauses Consolidation Act, 1845, either was contained or was endorsed with a notice of the effect of this section." This occurs in a number of Acts generally restricted to those conferring powers on public authorities, although I have found it in Acts conferring power upon a tramway company to construct tramways in London. The model Bill contains a clause dealing with this point in almost identical words, except that the question whether any and, if so, what portion of the costs is to be borne by the claimant is referred to the Court; contrary to the above clause, if the Court find as to the particulars, then the proportion to be borne by the claimant is as settled by Parliament.

6. Perhaps the principle that has given rise to the greatest amount of discussion, and been the subject of the largest and most interesting body of judicial discussion and interpretation is that contained in Section 92 of the 1845 Act. The amount of litigation caused has been so great, and the question has been so often asked, "What is the meaning of the words 'the value of the property taken'?" that it is not surprising that the question should have attracted the attention of some of the best legal minds of the country. The following notes of a case decided in 1841. The promoters in July

1831, gave notice to treat for an easement or right to widen a railway by iron beams resting on piers outside claimants' premises. The claimants served counter notice, requiring the promoters to take the whole of the manufactory. In the following year, after various proceedings, the promoters were held liable to take the whole, the claimant undertaking to sell the whole. The promoters then abandoned their first notice, and took steps to summon a jury to assess the value of the whole. The claimant then attempted to restrain the promoters from proceeding on this notice, but with this success. Lord Mansfield, in 1832, considered it a matter of very deep regret that the property of the public and interests of such very great magnitude should have been dealt with by the clause of the statute in such a loose and perfunctory manner that the Courts were left to conjecture without the aid of any kind of context in what meaning the word "manufactory" was used. The extent to which Section 92 was applied appears to have been very early settled, and it would seem that quite early was seen the hardship on promoters of any further extension. In the case of St. Thomas's Hospital and the Charing Cross Railway, the promoters of the latter, in 1834, if the company were compelled to purchase the whole of the property, of which they only required a very small portion, the whole of the remaining capital powers of the company would be exhausted. The principles earlier settled have been followed down to the present date, although it would appear that the late Lord Selborne, in his speech, as indicated upon promoters. For example, in 1859, Giffard, V.C., in deciding a case before him, said:—"I am not disposed to extend the scope of the cases decided under this section"; and in 1900 we find the Master of the Rolls, in a case under this section, saying:—"If this matter were decided against the defendants, it would be the arguments of the defendants (i.e., promoters) counsel. But it was decided fifty years ago that the word 'house' in this section must be construed in the same way as it would be in a grant in a conveyance, and that decision has been followed ever since." The section was also applied in the case of a house where a tunnel was equivalent to taking part of a house, and the promoters might be called upon to take the whole. In my own experience, promoters were enabled by the special Act to construct a tunnel without being compelled to take the property beneath which they were tunnelling, provided the tunnel was not more than five feet beneath the crown of the tunnel and the surface." In one case, owing to the uncertainty of the depth of the concrete under the footings, claimants insisted on claiming that the promoters should acquire the whole property beneath which tunnelling operations were to take place. The difficulty was solved by the promoters obtaining a special Act, which section special powers to construct the tunnel "without being compellable to purchase any greater interest than an easement." The obligations upon promoters were so onerous that it is a matter of no surprise that endeavours were made to seek relief from the obligations of section 92. From what I have discovered, the first relief was in respect of tunnelling, enabling companies to acquire easements below the surface. In a case tried in 1885 there is a reference to powers obtained by a railway company to take parts of lands, buildings, and manufactories set out in a schedule to the Act without being bound to take the whole of the land, if such portion can in the judgment of the jury, arbitrator, or other authority assessing or determining the compensation under the Act be severed from such properties without material detriment thereto. I believe this relates to the Great Eastern Railway Company's Act of 1880 and, for the purpose of the one of the earliest of this kind, although the first case I have been able to discover occurs in Railway Acts of 1875. This introduces the "material detriment" clause, which is the form embodied in the model clauses. Even here there is a distinction drawn by the authorities of the

House of Parliament, as a comparison of the alternative models will show. The first model clause enables promoters to purchase parts only of properties, described in the schedule to the Special Act if such portions can in the opinion of the tribunal assessing the compensation be severed from the remainder of such properties without material detriment thereto, the promoters to pay for the portion required and compensate for damage sustained by severance or otherwise. An alternative clause is included as admissible in the case of well-established companies, and especially in connection with widenings of existing works. This clause is much larger, and is based on the assumption that "it may happen that portions only of certain properties shown, or partly shown, on the deposited plans will be sufficient for the purposes of the company, and that such portions or some other portions of the whole can be severed from the remainder of the said properties without material detriment thereto." The model clause provides the machinery for determination, and gives the tribunal special powers over costs. In the only case in my experience under this section a jury decided that the parties respectively "without material detriment" could be severed; and the question of quantum was ultimately settled by agreement, when costs were also provided for. In this class of cases, material detriment forms the governing factor; yet, so far as I know, there is neither statutory nor judicial definition of the term "material detriment" applied in cases very similar, not under the Lands Clauses Acts but under the Paving Act, 1817, commonly known as Michael Angelo Taylor's Act. To my mind, the best test is that applied to the latest, or one of the latest, of these cases—viz., that of "Green and Edwin v. Hackney Borough Council," which was first treated in detail expressed by Mr. Justice Stirling in a previous case, that of "Gibson v. The Paddington Vestry."—"In considering whether the local authority is entitled to take part of a house, the portion taken must be something which can fairly be called a part. If, for example, a portion of a house is removed, without substantially destroying the house as a house, that, according to the decision, may be taken; but if, on the other hand, a substantial portion is taken by the authority so that the use of the house is substantially injured and can no longer be enjoyed as it was before, then it seems to me that it is a matter of no doubt that the whole must be taken. Although, as previously stated, there is no judicial decision as to what is material detriment, the application of the principles enunciated in that judgment would be, it appears to me, a safe guide to surveyors in considering the matter, although I incline to the opinion that the limitation of material detriment. To endeavour to minimise the cost of clearing insanitary areas, the Act of 1890, which made important departures from previous Parliamentary practice, introduced special procedure relating to the purchase of premises, which is as follows:—"If the local authority is empowered to purchase land compulsorily, it shall not be competent for an owner of a house or manufactory to insist on his entire holding being taken, where part only is proposed to be taken as obstructive, and where such part proposed to be taken is not in the opinion of the arbitrator to whom the question of disputed compensation is submitted, be severed from the remainder of the house or manufactory without material detriment thereto, provided that compensation may be awarded in respect of the severance of the part so proposed to be taken in addition to the value of that part." The Road Improvement Funds Act, 1909, although the provision is to the same effect it is in a somewhat different form. It is as follows:—"If an order authorising the acquisition of any buildings may, if a portion only of such buildings is required for the purposes of the undertaking, notwithstanding anything in the Lands Clauses Act, require

the owners of and other persons interested in those buildings to sell and convey to the undertakers the portions of the buildings so required, if the arbitrator is of opinion that such portions can be severed from the remainder of the properties without material detriment thereto, and, in such case, the undertakers shall not be obliged to purchase the whole or any greater portion thereof, and shall pay for the portions acquired by them and make compensation for any damage sustained by the owners thereof or other parties interested therein by severance or otherwise." Although for many years it has been the practice for Parliament to give relief in some form or another from the obligation of Section 92, it is only in comparatively recent years that absolute power to take parts only has been allowed. There are generally granted only to public authorities, and the growth in connection with London improvements may not be uninteresting. For many years isolated properties were allowed by Parliament to be interfered with by having parts only taken without the promoters being called upon to take the whole. Prior to 1898 the powers were usually subject to the material detriment clause, although in 1897 a clause was accepted allowing parts of a small number of scheduled properties to be taken without this qualification. Then in 1898 the whole question was discussed by the Parliamentary authorities upon a Bill, the first of its kind, designed to effect the widening of a large series of streets by the purchase of the houses on the whole. The Act conferred the absolute power to take parts only according to a schedule thereto without the qualification as to material detriment, while a further schedule set out the few cases to which a material detriment clause should apply. Although a novelty, no cases reached the Courts, and I believe no claims were referred to a jury. These restrictions have now become standardised, but in the last year or two a further extension. It has been applied to shops projecting beyond the main front walls of buildings, and the clause has now added to it a proviso inserted at the instance of the Lord Chairman of Committees of the House of Lords—"Provided that this section shall not entitle the Council to take or interfere with the main structure of a house, building, or manufactory."

I think I have shown how the six principles deduced from the 1892 Act have in course of time, and principally in recent years, been modified, if not actually changed. It is fair to say that the greatest changes have been made in powers granted to public authorities; the distinction made by the Courts in construing statutory provisions having in later years influenced the character of the powers granted by Parliament. We may now enumerate the same six principles in the form in which they have been more or less generally embodied in Private Bill legislation authorising the purchase of property compulsorily. I must not be understood to say that they all appear in any one statute; but only that Parliamentary sanction may be found for them substantially in the form in which I state them:—

(1) Large powers for the acquisition of property compulsorily for public purposes exercisable without the necessity for special application to Parliament in some instances, by means of resolution of a public authority only; or by means of an order confirmed by a Government Department.

(2) The lands to be taken are not restricted to what are actually required for the undertaking, but extend to large areas for recompense and for reinstating persons displaced.

(3) The substitution of the basis of compensation of market value for the value to the owner; with the exclusion from consideration of any new interests created after the date the scheme was made public, or for any additional alteration to the premises made after the same date. The right of promoters, in having the compensation assessed, to pay

in aid the benefit an owner will obtain from the execution of the works.

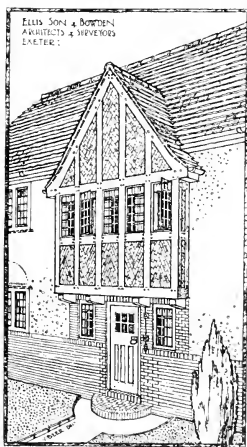
(4) Express statutory provision that no additional allowance is to be made because the purchase is compulsory, thus depriving claimants of the customary ten per cent.

(5) Statutory designation of the character of the tribunal to settle disputed cases of compensation, even the personnel being determined, not by the parties, but by an independent authority, an arbitrator, and not a jury, being the normal tribunal. Modification of the Lands Clauses Acts as to the payment of costs in certain cases; and the limitation of witnesses.

(6) Promoters obtain absolute power in some cases, and in others a qualified right to take parts required without being compelled to take the whole. The tendency of recent legislation as shown above would indicate that, at least so far as powers for public authorities are concerned, the time has arrived for a codification of the law relating to the purchase of property for public purposes. The manner in which these principles should be applied, and the safeguards with which they should be surrounded cannot be dealt with in this paper; but there is no doubt that the subject is one of first importance, and deserves the careful and exhaustive consideration of all members of this Institution.

HOUSE IN WEST AVENUE, EXETER.

The illustration shows somewhat in detail the central feature of the house, which emphasises the front entrance. The main exterior walls of the house are of local brick,



roughcast and whitewashed, except for the porch, which is faced with hand made sand face bricks. The roof is covered with local plain red tiles. The windows are of the casement pattern, with metal casements in wood frames and glazed with leaded lights.

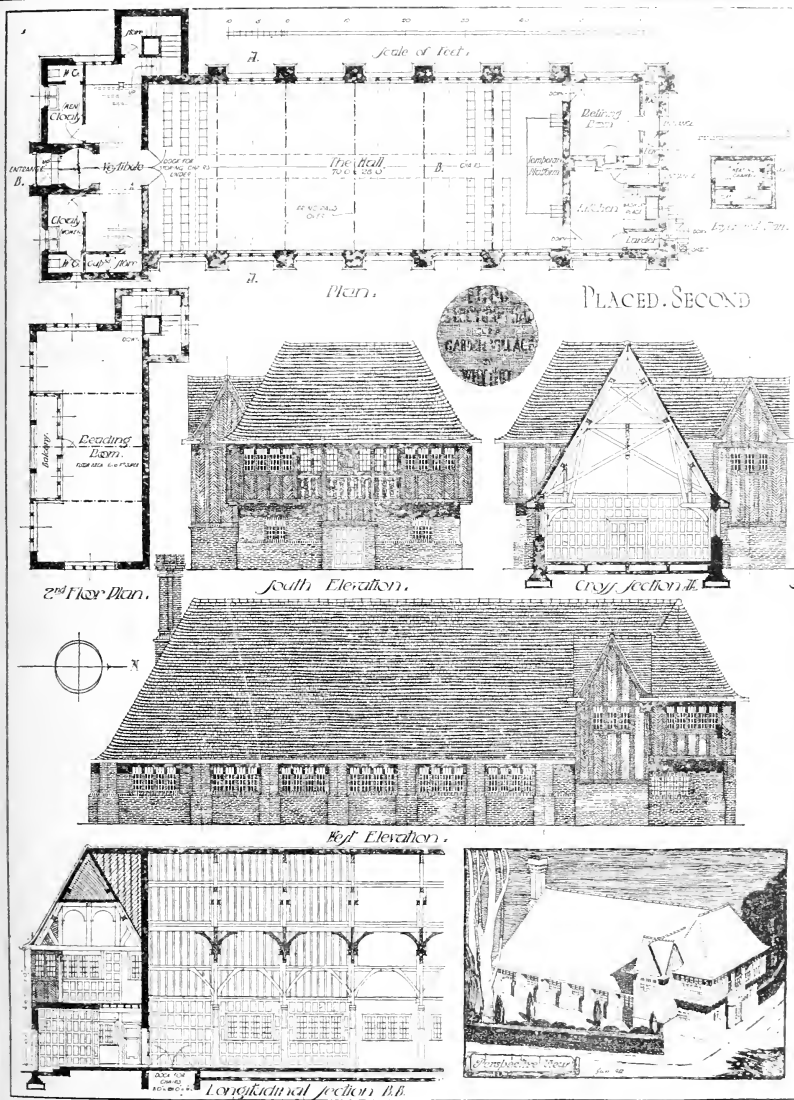
The overhanging gable illustrated forms a bay off the half space in stairway, and is central over the front entrance; the half timber work is of oak framing, left rough from the saw and treated with oil, and it is filled in between with hand made Oxford bricks, the whole being carried on heavy oak cantilevers. The wood and ironwork generally is painted a bright green.

The house was designed by Messrs. Ellis, Son, and Bowden, architects and surveyors, Bedford chambers, Exeter, and the contractors were Messrs. Westcott, Austin, and White, also of Exeter.

"BUILDING NEWS" DESIGNER'S CLUB.

A LECTURE HALL FOR A GARDEN VILLAGE.

We place "Five Towns" first, and "Veritas" second, and "Veritas" third. A third, and a fourth, and a fifth, and a sixth, and a seventh, and an eighth, and a ninth, and a tenth, and an eleventh, and a twelfth, and a thirteenth, and a fourteenth, and a fifteenth, and a sixteenth, and a seventeenth, and an eighteenth, and a nineteenth, and a twentieth, and a twenty-first, and a twenty-second, and a twenty-third, and a twenty-fourth, and a twenty-fifth, and a twenty-sixth, and a twenty-seventh, and a twenty-eighth, and a twenty-ninth, and a thirtieth, and a thirty-first, and a thirty-second, and a thirty-third, and a thirty-fourth, and a thirty-fifth, and a thirty-sixth, and a thirty-seventh, and a thirty-eighth, and a thirty-ninth, and a fortieth, and a forty-first, and a forty-second, and a forty-third, and a forty-fourth, and a forty-fifth, and a forty-sixth, and a forty-seventh, and a forty-eighth, and a forty-ninth, and a fiftieth, and a fifty-first, and a fifty-second, and a fifty-third, and a fifty-fourth, and a fifty-fifth, and a fifty-sixth, and a 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"BUILDING NEWS" DESIGNING CLUB: A LECTURE HALL FOR A GARDEN VILLAGE.

winding stair, all winders round the curved end, is tucked in, devoid of light, at the top, and here tall people would hit their heads getting up and down. The exterior is picturesque, but there is no side elevation, and, as far as we can find out, the reading-room hooded fireplaces, so chic in the section, have to make shift without chimneys.

"Norseman" is neat, but is so enamoured of bay-windows, that to balance them he crams a scullery, likewise a larder, into one of a pair. His vestibule has a colonnade in it, and just before entering the hall two deep, dark-niched alcoves add quaintness, but serve no other purpose whatsoever. Had the space so wasted been opened into the hall,

more sense would have been displayed. The purlins show in the roofed ceiling, but outlets are given for ventilation. The exterior is poor and sparse looking.

"Norvic" may not draw dashing's, but has more refined notions, and we would commend him for the front part of his scheme for its outside treatment, speaking reservedly

THE CONSISTENCY OF CONCRETE.

A circular letter of inquiry on the subject of the "Consistency of Concrete" was addressed to the members of the Concrete Institution, in which it was suggested that a specification as drafted would be of service, pending experiments and tests that might be made to determine the exact proportion of water to be used in concrete in order to obtain the best mixture. This specification as now slightly modified by the committee, is as follows:

Consistency of Concrete.—For mass concrete the quantity of water added to the other constituents shall be sufficient to make a plastic mixture which, after thorough ramming, will quiver like a jelly. For reinforced concrete the quantity of water added to the other constituents shall be such that the plastic mixture is capable of being rammed into all parts of the moulds and between the bars of the reinforcement.

Notes.—In dry or hot weather the quantity of water shall be increased in order to allow for evaporation.

Fifty-eight replies were received, from which a number of extracts are appended hereto. The only important point discussed, endorsed by the Reinforced Concrete Practice Standing Committee, who have come to the following conclusions:

1. It is inadvisable to lay down any definite rule as to the percentage of water to be used in mixing concrete, owing to the varying conditions which demand the most careful specification is difficult to improve upon, and seems to meet with general agreement.

2. The strength of concrete apart from any reinforcement increases as the amount of water used in mixing is decreased, this being more particularly the case during the earlier stages of the maturing of the concrete. Eventually, the wetter of two mixtures will approach more nearly to the drier in strength.

3. In reinforced concrete, particularly in such portions as may contain a large amount of reinforcement, the concrete packed closely together, it is essential that the concrete should be sufficiently wet to pass between the reinforcing bars, and to thoroughly surround every portion of the steel. This should be insisted even at the expense of having the concrete wetter than would otherwise be desirable. Where the reinforcement is not very closely spaced, it is unnecessary for the concrete to be so wet.

4. Other conditions being the same, the drier the concrete the more quickly will it set and mature. This is of importance when there is any danger of green concrete being attacked by frost.

5. The wetter the concrete the greater is the tendency to contract during the process of setting and maturing. Appreciable contraction may sometimes continue for a period of several years.

The committee is divided as to the advisability of determining by some means of mechanical test the exact degree of "wetness" or consistency of concrete after mixing. If some scale of consistency were adopted, it would be possible to specify that concrete for any particular portion of the work should be of such and such a consistency after a certain time would not, of course, be at all the same as specifying that any particular amount of water should be used in mixing such concrete, owing to differences of atmospheric temperature, aggregate, &c. The advocates of the institution of some such scale of consistency are of opinion that the Concrete Institution should carry out the work on this subject.

SUMMARY OF REPLIES RECEIVED.

1. Several correspondents advocate the consideration of the results of tests before any rule is arrived at.

2. One correspondent suggests that a table should be given showing the maximum difference found in practice with different aggregates in the usual proportions and under different conditions, the quantity of

water to be stated in gallons per cubic yard and the moulds assumed to be of soft wood. The form of table is as follows:

PROPORTIONS OF CONCRETE.					
— Gallons of water per cubic yard of materials. —					
Sandstones, Chalks, & "Common" Bricks.		Granite and Hard Limestones.			
Aggregate, Dry.		Aggregate, Wet.			
A.	B.	A.	B.	A.	B.
Dry weather.					
Wet weather.					

A = for getting into corners and sticking to steel all over to prevent corrosion. B = for strength in masses of concrete.

3. Some correspondents point out that the quantity of water required might vary with the character of the cement namely, whether "quick" or "slow" setting.

4. A third correspondent points out that in one case 25 to 30 gallons of water per cubic yard of concrete has been advised, and, in another case, 21 to 23 gallons per cubic yard of dry material.

5. A second correspondent uses one gallon of water to one cubic foot of dry material where the aggregate is crushed flint or ballast. In this case, when the temperature has been above normal, it has been necessary to increase the amount up to 25 per cent. of the above stated quantity, and when the reinforcement is heavy and ramming difficult, a further supply of water is necessary, and 12 gallons may be needed.

6. A third correspondent says that usually about 22 per cent. of the total volume of cement and sand or 20 per cent. by weight of these are usually taken for the quantity of water, but points out that about 15 per cent. by volume is required to enter into chemical combination with the cement and sand, and the rest is required to prevent cracking in its place undesirable voids in the mass.

7. One correspondent suggests that the provision as to addition of water in hot and dry weather is unnecessary, for under such circumstances a certain increase would be automatically required to produce plasticity, and the loss should be prevented and not counteracted by means which tend to impair the quality of the concrete. He suggests the substitution of the following rule as sufficient to cover all cases: "The quantity of water added to the cement and aggregate mixture shall be just sufficient to produce a plastic mass after thorough and complete mixing."

8. Another correspondent would prefer to substitute the following wording for the clauses put forward: "For mass concrete as much water should be added as the mixture will take without softening away or working up to the surface when the concrete is being rammed into its destination. In the case of reinforced concrete if, after ramming into position, the water works up to the surface, the quantity may be considered excessive. Short of this, however, as much water as possible should be added."

9. A correspondent requires the condition "that when the concrete is thoroughly rammed into place water shall only just appear in the rammed surface."

10. A correspondent suggests the insertion of the word "light" before the word "ramming," as the heavy way in which this is carried out, especially in reinforced concrete, often results in the boards of which the mould is made springing apart and so allowing the water and cement to ooze through the joints and detract from the final strength.

11. One correspondent suggests adding in the first paragraph the words, "and not more than sufficient" after the word "sufficient."

12. It is suggested that emphasis should be laid on the fact that the mixture must only quiver like a jelly after the ramming has been completed, and not before. It is also suggested that it might be advisable to state that where absorbent coarse materials are

used, great care should be taken to let them absorb all the water they require before being mixed with the cement, or having arrived by experiments at the amount of water which the aggregates will absorb, that extra amount of water should be added at the time of gauging. It is thought, however, that the former practice would be preferable.

13. One correspondent points out that the words "quiver like a jelly" would apply to a small aggregate and gentle continuous ramming, but that a larger graded aggregate would not show the same result.

14. One correspondent does not favour ramming of concrete, preferring "a plastic mixture of the utmost possible density, which will flow into position in the moulds and round and in contact with the reinforcement (if any) without ramming other than consolidation aided by iron bars or spades."

15. Two correspondents point out that the danger to be guarded against is a plastic mixture as advised is one of loss of homogeneity caused by repeated ramming resulting in the larger parts of the aggregate going to the bottom, leaving the fine particles at the top.

16. Another correspondent suggests that to the danger of the forced concrete should be added the words, "but in no case should the water be so much in excess as to cause the concrete to be of such consistency that when the mould is filled and rammed it has a distinct tendency to act as a semi-fluid under the pump."

17. One correspondent objects to the watering down of concrete to the consistency of slurry in order to make it run into the centering and round the steel, for the average centering is not sufficiently watertight to prevent a certain portion of the finest material seeping. He thinks that attenuated dimensions in reinforced concrete work should be avoided, so as to do away with the necessity for making the concrete so liquid.

18. It is suggested that the specification should state that for reinforced work the concrete should not contain so much water as to cause a large quantity thereof to exude during maturing.

19. It is pointed out that with reinforced concrete pipes it might be found impracticable to ram the mixture into all parts, and for such class of work it would have to be of such consistency as to run.

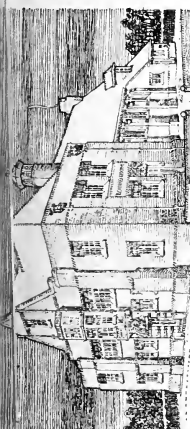
20. Several correspondents direct attention to the prevention of setting in hot climates. The procedure adopted by one correspondent is to use very little more water in the original mixture, but to shade the work from the direct rays of the sun for the first twenty-four hours. Then if in small blocks, they are totally immersed in a shallow tank of water, or if in mass concrete the work is covered with wet sacks or reed matting, which is kept at the point of saturation. In either case the concrete is sprayed with water twice a day for about a fortnight.

21. Another correspondent in hot and dry weather waters the concrete two or three times daily for a week or so.

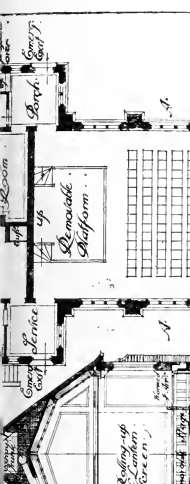
22. One correspondent suggests adding the words "and absorption" after the word "evaporation." He thinks that in hot weather it is possible the false work should be watered on the outside unless a little extra water be added to the concrete.

23. A correspondent desires to call attention to the legal aspect of the case, which would probably be raised in the case of a dispute as to the "goodness" or "badness" of the rule. For this reason he thinks the personal element must be entirely eliminated, and the rule or specification should be so framed that the results will be the same irrespective of the persons who shall be responsible for it. He suggests that a wooden box, 5in. wide by 3in. deep and 6in. high, with two 1in. square steel bars arranged vertically and attached securely to the 5in. side, which latter is to be hinged at the bottom to the remainder of the box so as to be capable of being opened. In use the box would be filled with concrete to a specified depth of time, turned with the side carrying the bars uppermost and opened, when it would be found whether the concrete kept the correct form of the mould. He suggests that

At Malvern, Mr. R. G. Hetherington has held a Local Government Board inquiry with reference to the urban district council's application for sanction to borrow £6,700 for the reconstruction of certain sewers. The scheme, which was explained by Mr. Thos. surveyor, was heartily supported by Dr. Fesbreke, medical officer of health to the Worcestershire County Council. No opposition was offered.



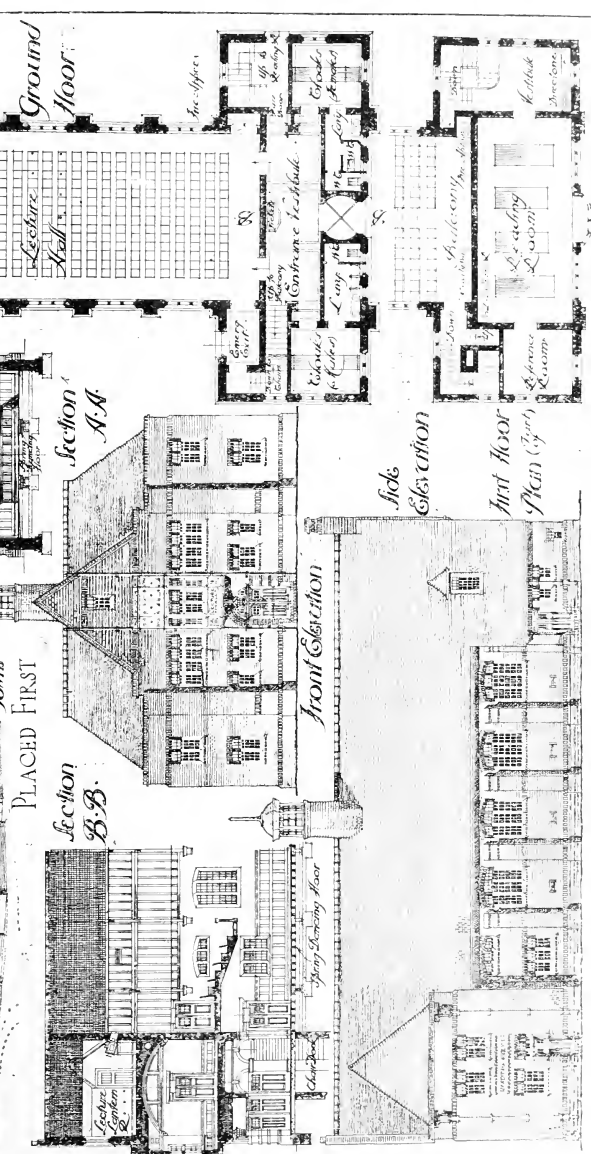
DESIGN OF LECTURE
HALL, ST. JOHNS
GARDEN -
VILLAGE by
The
J. J. Jones



PLACED FIRST

Section
B.B.

Section
A.A.



BUILDING NEWS' DESIGNING CLUB.

Building Intelligence.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH. A draft plan is about to be put for the 9th Battalion Royal Scots (Highlanders), in Cameron crissie, Edinburgh, an estimated cost of £7,000. It will be divided into two parts, and the outside is to be treated in a Classical manner, with pedimental decoration as the central feature. The front will be the administrative block, composed of three floors, including the basement. On the ground floor level there will be a large entrance. The recreation room for the men will be 40ft. by 25ft., and there will also be a room specially set apart for sports. Other rooms here are for consulting business, for medical inspection of recruits, and for the use of the commanding officer. The officers' mess will consist of a room 10ft. by 20ft., a billiard room, etc. On the first floor there will be a lecture hall, 62ft. by 10ft., which will be used for social gatherings, presentations of prizes, and lectures; the sergeants' quarters, a mess room 40ft. by 20ft., and a billiard room. The second part of the building is composed of a drill hall, 100ft. by 80ft., which is to be on the basement floor, where there will also be the wagon stores, 50ft. by 20ft., for the general service waggon, machine guns, etc. The architect is Mr. F. Duncan Grant, A.R.B.A.

HENNOCK. In Hennock parish, near Newton Abbot, a new village is springing up, a order that accommodation may be provided for the workers at the Teign Valley Granite Works, the number of employees having considerably increased during the past year or so. The directors of the company endeavoured to persuade builders to take the matter in hand, but these efforts proved unavailing, and they themselves erected a desirable site near the present Hennock village. The directors took into consideration the question of the water supply. A reservoir has been built which has a holding capacity of 30,000 gallons. The company is laying out about 100 acres in order to provide accommodation for the workpeople, and plans of fifty cottages are being in course of erection by Messrs. Goss Bros. & Co., in accordance with the plans of Mr. C. P. Stowe, of Devonport. Two types of cottages are being erected—four-roomed dwellings (sitting room, kitchen, and two bedrooms), and the six-roomed dwelling, with an additional bedroom and bathroom. The majority being of the larger type, the shops are also being built, and it is proposed that the new area shall be known as Teign village.

COMPETITIONS.

HASTINGS. The new East Sussex Hospital Competition award is likely to be made till the end of the month, and the issuer has not yet determined his award, the designs, of which there are fifty-two, being now under his consideration.

PAIGNTON. The Paignton Urban District Council have decided to invite schemes from engineers for the drainage of the district. The first premium will be £200, second £200, third £100, and 50 per cent. of the premium will be merged in the commission to be paid to the engineer who carries out the work. The drainage of the district is becoming necessary, having regard to the rapid development of the town, especially on the higher levels, and the outskirts. The original scheme was submitted by Messrs. Wolfe Parry, Breverton, and Brunell some twenty years ago, when the population was only 7,000; now it is over 12,000, and is rapidly increasing.

Mr. John Garstang, a making interesting discovery in his excavations at Merce and Kishbaba. The palace near the Temple of Amen is found to consist of forty chambers of a large room.

Mr. Henry Vasey for many years surveyor of the East Devon Rural District Council, held at an installation meeting of the Royal Archaeological Institution at Littlehampton on Monday night. He was about sixty-five years

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Mr. Edwin T. Hall, F.R.I.B.A., will read a paper on "Art Museums and Picture Galleries" at the General Meeting of the Institute fixed for April 1. The illustrations will include a fine collection of slides specially prepared for the paper. Mr. Hall's paper is in substitution of that on "Modern Methods of Construction," which Mr. William Dunn is unable to read.

THE SOCIETY OF ARCHITECTS.—The monthly meeting of the Society of Architects was held at 28, Bedford square, W.C., on Thursday evening in last week. Mr. G. A. T. Middleton, A.R.B.A., past vice-president, occupying the chair. Ten nominations for membership and five for studentship were read. The following candidates were elected by ballot: As Members: James Burns, Blackpool; William Stanley Dean, Bournemouth; Robert Donnelly, Dublin; Theodore Monkhouse Ellis, Bessettale road, N.W.; Thomas Holt Fothergill, S. Chippington, N. W. Jones, Port Talbot; Daniel Andrew Lewis, Rochester, Co. Cork; Frederick Matthews, Stoke Newington; Thomas Reid Peacock, Quebec; and Brian Edward Fitzgerald, Sheehy, Limerick. As Students: Albert Leigh Abbott, Donald Henry Butt, Francis Holt Fothergill, Henry Edgar, George Faversham, Alfred Stephen George Lawford, Raymond Gower, Evan Daniel Jones, and Daniel Roy Lane. A paper on "Illumination as a Study for Architects," illustrated by diagrams and lantern slides, was read by Mr. John Darch, F.S.I.; a full report was published in our last issue, pp. 24-6. A vote of thanks was passed to the lecturer on the motion of Mr. H. Freyberg, seconded by Mr. B. R. Tucker, and supported by Mr. Justus Eek, Mr. H. Mackinnon, and the chairman.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general meeting was held in the society's room at the Leeds Institute on Thursday evening, January 11, the president, Mr. S. D. Kitson, F.R.I.B.A., in the chair. An interesting paper was read by Mr. W. W. Workman, on "Reinforced Concrete Applied to Building." The paper was illustrated by many slides, showing both structural problems and architectural treatments to interiors and exteriors. The lecture was concluded by a discussion, on which many practical details were debated upon. A vote of thanks was passed, on the motion of Mr. G. N. Grundy, seconded by Mr. W. H. Thorp, F.R.I.B.A.

THE ULSTER SOCIETY OF ARCHITECTS.—This society held its annual general meeting on Monday, January 8. There was a good attendance of members and associates, including, among others: Messrs. R. M. Young, F.R.I.B.A.; W. J. Gilliland, F.R.I.B.A.; J. J. McDonnell, J.P.; N. Fitzsimons, F.R.I.B.A.; H. Seaver, B.E.; W. C. McEwen, A.R.B.A.; T. H. Houston, A.R.B.A.; St. J. Phillips, A.R.B.A., hon. secretary. Routine business being disposed of, the report of the council for the year 1911 was adopted. During the year 1911 the council held six meetings of council, which were well attended. In addition, three general meetings were held, to which all the members, a societies, and students were invited. We regret that these general meetings were not better attended. During the year we received three resignations. It is therefore strongly urged on our junior members, that those associates who are qualified for full membership should be enrolled as "members," and take their proper place and standing in the ranks of the profession. At no time in the history of our society has there been greater need, in the interest of the junior members, for co-operation and combined effort, with a view to improving the conditions of architectural practice, particularly in the interests of the younger members of the profession. Every week brings reports of the actions of the numerous district and urban councils who are carrying out or proposing to carry out small local schemes for "labourers' and workmen's dwellings, and larger schemes for

technical and municipal buildings and schools. In the great majority of cases the architectural work in connection with these schemes is entrusted to read surveyors, builders', clerks, and county surveyors' assistants, or others equally unqualified and incompetent in carrying out the duties of architect. The Board of Works and other controlling Government bodies have sanctioned and approved of such incompetent work, and, as a result, the architect thus frustrating the purposes and intentions of those who originally framed the provisions of the Labourers' Act. The results of such policy on the part of the Local Government Board are to be read in the report of badly designed and badly built houses, necessitating an excessive amount of repairs or reconstructions. With such warnings in view, we find that during this year several rural and urban district councils have rescinded previous resolutions, and have appointed as architects assistant county surveyors, who had already accepted office on such terms. It is to be regretted that those devoted to their duties as surveyors. Such appointments are remunerated at rates that would be a positive loss to any qualified person who would faithfully and conscientiously carry out the duties attached to these appointments. It is to be regretted that the Housing of the Working Classes Bill has passed Parliament, and will, in due course, result in a revision of the building by-laws in force in this city. Such by-laws will be likely to affect architectural practice and the interests of building owners. It is of extreme importance not only to architects, but to building owners, that competent consideration should be devoted to the framing of such by-laws which will have far reaching results, either for good or evil, on the future progress, both architectural and commercial, of our city. We have been assured that your society will have the opportunity of considering the draft by-laws before presented to the city council for final adoption. The matter of affiliation with the R.I.B.A. has been further pressed, and it is hoped that within a reasonable time this will be accomplished. The hon. treasurer, Mr. Houston, submitted statement of the accounts for the year, which showed the society to be in a satisfactory financial position. A discussion arose as to the best means of furthering the objects of the society, and some recommendations were made to that effect to the incoming council. Mr. McDonnell referred to the candidature of Mr. Gilliland for membership of city council, and proposed, "That the society burn with pleasure of the candidature of W. J. Gilliland, F.R.I.B.A., for Victoria Ward, knowing, as it does, the attention and expert knowledge he will bring to further all the interests of the city and the expenditure of money to be entered into in municipal undertakings, and the society trusts that Mr. Gilliland will be successful in his candidature." The motion was seconded by Mr. Seaver and passed with acclamation. Ballot papers for officers for the coming year were then opened by the secretaries, resulting in the election of the following officers: President, Mr. H. Seaver, B.E. Vice-president, J. J. McDonnell, J.P. Council, W. J. Gilliland, F.R.I.B.A.; R. M. Young, F.R.I.B.A.; and N. Fitzsimons, F.R.I.B.A. Associate members of council, T. W. Henry and J. Seeds. Auditors, F. H. Thorne and James Ferguson. Hon. treasurer, E. R. Kennedy, A.R.B.A. Hon. secretary, Thomas Houston, Kingscourt, Wellington place. The Corresponding Committee of Derry Architects to elect two members of council in addition to above.

EARLY SLAVONIC DWELLINGS.—Mr. C. F. Innocent, A.R.I.B.A., lectured before the Sheffield Society of Architects and Surveyors on the 11th inst. upon "The Old Slavonic House." The subject of the lecture, which has been very thoroughly studied by Herr K. Rhamm, to a review of whose book, "Die Altslawische Wohnung," the lecturer devoted the greater part of his remarks. The lecturer described the countries inhabited by the Slavs, the bulk of whom were to be found in Russia and Eastern Europe. The Slavs were to day the most numerous race in

Birch: Quebec Logs	0	2	0	"	0	2	0
Oak: Austrian Wainscot	0	7	0	"	0	8	0
Mahogany: Gaboon.....	0	6	12	"	0	6	0 1/2

FURNITURE AND HARDWOODS.

Teak: Burmese, per load (56c ft.) £20	0 0	0	£21 10 0
" Java	15	0	18 0 0
Oak Planks: U.S.A., imported, ..	0 19	0	20 6 0
" Boards	0 23	4	22 9 0
" Pine	0 11	0	22 2 0
Birch (California Redwood) ..	0 10	0	22 2 0
Scrub: Quebec log	0 10	0	22 2 0
" " sawn planks	0 10	0	22 2 0
Asiatic: American	0 10	0	22 2 0
Walnut: Primo boards & planks ..	0 50	0	0 12
" " Milm.	0 3	1	0 12
Greenheart: Heavy logs	0 3	0	0 12
" Clear: Clear box	0 3	0	0 12
Satin Walnut: Imp. sawn boards, ..	0 23	3	0 26
" prime	0 10	0	0 22
Mahogany: St. Domingo, ..	0 14	0	0 22
" and Honduras ..	0 64	0	0 10
" African, Assine, ..	0 34	0	0 10
" Lagos and Benin ..	0 34	0	0 11
" Sekondi and Cape ..	0 21	0	0 36
" Gabon ..	0 14	0	0 36
Satinwood: West Indian ..	0 10	0	0 22
Rosewood	7 0	0	12 0 0
Lignum Vitæ	4 0	0	11 10 0

STONE.*

Red Mansfield, ditto	per foot cube	£0 2 3
Darley Dale, ditto .....	..	0 2 3
Red Corshill, ditto .....	..	0 2 2
Cleburn Red Freestone, ditto ..	..	0 2 0
Cranecliff, ditto .....	..	0 2 0
Greenhill, ditto .....	..	0 1 10
(Hilmar), ditto (in truck at Nine Elms)	..	0 1 10
Hard York, ditto .....	..	0 2 10
Ditto ditto En. sawn both sides, land-	..	..
ings, random sizes	per foot sq.	0 2 8
Ditto ditto Six, abut. two sides, ..	..	0 1 3
random sizes .....	..	0 1 3
Beth Stone, delivered on rail at quays ..	per foot cube	0 1 0
Delivered on road wagons, Fiddington ..	..	0 1 6
Ditto .....	..	0 1 6
Ditto ditto, Nine Elms Depot ..	..	0 1 6
Beth Stone, delivered on rail at Seaton ..	..	0 1 0
Ditto .....	..	0 1 0
Ditto, delivered at Nine Elms Station ..	..	0 1 6
Portland Stone, in random blocks of 20ft. average ..	..	..

Delivered to railway depot ..	Brown	White
at the quarry	per foot cube	£0 2 3
Delivered on road wagons ..	..	..
at Fiddington Depot ..	..	..
Ditto, Nine Elms Depot ..	..	0 2 1
Ditto, Finslow Wharf ..	..	0 2 2

SLATES.

Blue Portland 20x12 12 6	per 1000	£1200 at 1200 at 1200 at
" 18x8 8 12 0	..	..
Blue Bangor ..	20x12 13 7 6	..
" 20x12 13 17 6	..	..
Forest quality ..	20x12 13 17 6	..
" 18x8 8 12 0	..	..
Franka unfading ..	20x12 13 17 6	..
green ..	20x12 13 17 6	..
" 20x12 13 17 6	..	..
" 18x10 13 17 6	..	..
" 18x8 8 12 0	..	..
Permanent green ..	20x12 13 17 6	..
" 18x10 13 17 6	..	..
" 18x8 8 12 0	..	..

BRICKS.

Hard Stock	£1 6 0	per 1,000 alongside, in river
Bough Stocks and ..	..	..
Grazzles	1 0 0	..
Picked Stocks for ..	..	delivered
Excess	2 10 0	at railway station.
Fettions	1 0 0	..
Pressed Wire Cuts ..	1 10 0	..
Red Wire Cuts ..	1 14 0	..
Best Farham Red ..	3 12 0	..
Best Red Pressed ..	..	..
Quaker Facings ..	6 0 0	..
Best Blue Pressed ..	..	..
Staffordshire ..	3 16 0	..
Ditto Bullnose ..	0 0 0	..
Best Stourbridge ..	..	..
Fire Bricks ..	3 14 0	..
21" Best Red ..	..	(Not delivered in
common Plastic ..	4 10 0	full truck loads
Facing Bricks ..	..	in London.
31" Accrington Best Red Plastic Facing Bricks ..	£2 10 0	per 1,000
" Ditto Second Best Plastic ditto ..	2 6 0	..
" Ditto Third Best Plastic ditto ..	2 11 0	..
" Ditto Plastic Engineering Bricks ..	1 17 6	..
Rever Art's Brick, not more than 34" at ..	..	..
Stocks part ..	2 0 0	..
34" Chimney Bricks fit for outside work ..	2 6 0	..
34" Ditto ..	2 0 0	..
34" Roadcut, Frodo and Bevo, Dangle, (Leamons) ..	3 7 6	..
21" and 14" Bullnose Bricks; Stock patterns ..	3 7 6	..
Accrington Art Bricks, 3 1/2 x 2 course depth, each ..	0 6 0	..
Ditto ..	0 6 0	..
Accrington Chamber Arches ..	..	..
3 course depth, 1/2 built, per foot opening ..	0 1 3	..
4 ditto ..	0 1 8	..
5 ditto ..	0 2 1	..
6 ditto ..	0 2 8	..
3 ditto ..	0 2 1	..
5 ditto ..	0 2 1	..
6 ditto ..	0 3 9	..
6 ditto ..	0 6 0	..
Net free on rail, free on boat at works.	..	..

GLAZED BRICKS.*

HARD GLAZES, (per 1,000.)	White, Ivory, and ..		Buff and ..		Other ..		Second Colours.
	Best.	Seconds.	Best.	Seconds.	Best.	Seconds.	
Strechers ..	£20 7 6	£18 7 6	£18 7 6	£18 7 6	£18 7 6	£18 7 6	£18 7 6
Headers ..	10 7 6	8 17 6	11 17 6	10 17 6	10 17 6	10 17 6	10 17 6
Quoins, Bullnose, and 4 1/2 in. ..	13 17 6	12 17 6	16 7 0	19 17 6	14 7 6	14 7 6	14 7 6
Double Strechers ..	16 7 6	14 17 6	10 7 0	22 17 6	16 7 6	16 7 6	16 7 6
Double Headers ..	13 7 6	11 17 6	16 7 0	19 17 6	13 7 6	13 7 6	13 7 6
One side and two ends, square ..	18 7 6	16 17 6	21 7 6	25 7 6	18 7 6	18 7 6	18 7 6
Two sides and one end, square ..	17 7 6	15 17 6	20 7 0	24 17 6	17 7 6	17 7 6	17 7 6
Plains and Squares ..	16 17 6	14 17 6	20 7 0	23 7 6	16 17 6	16 17 6	16 17 6
Spills and Hollow Bricks, Strechers and Headers ..	64, each	64, each	64, each	64, each	64, each	64, each	64, each
Don'tio Bullnose, Round Head, Bullnose Stops, and Bull-	64, each	64, each	64, each	64, each	64, each	64, each	64, each
nose Mitres ..	64, each	64, each	64, each	64, each	64, each	64, each	64, each
Rounded Internal Angles ..	64, each	64, each	64, each	64, each	64, each	64, each	64, each

NOTICED BRICKS.

Strechers and Headers ..	64, each	64, each	64, each	64, each	64, each	64, each	64, each
Internal and External Angles ..	12 each	12 each	12 each	12 each	12 each	12 each	12 each
Cill Bullnose, Strechers and Headers ..	64, each	64, each	64, each	64, each	64, each	64, each	64, each
Majorities or Soft Glazed Strechers and Headers ..	£21 17 6	..	..	..	..	..	..
Compass Tiles, circular and arch bricks ..	..	..	..	..	..	..	..
of single radius 12 in. or 10 over alone (Not exceed-	..	..	..	..	..	..	..
ing for their respective kinds and colours) in 2 in. x	..	..	..	..	..	..	..
6 in. arch brick, any colour or colour ..	4 1/2 in. x 2 1/2 in.	..	..	..	..	..	..
Strechers cut for Kiosks and Nicked Double Headers, ..	..	..	..	..	..	..	..
£1 per 1,000 extra. ..	..	..	..	..	..	..	..
* These prices are carriage paid in full truck loads to
London stations.
Thames and Pat Sand	7 0	per yard, delivered.
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Best Ground Blue Lias Lime ..	10 0
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Plain red roofing tiles ..	4 1/2 in. x 2 1/2 in.	Delivered	per 1000 at rly. str.
Hip and Valley tiles ..	3 7	per 1000	..
Brusley tiles ..	3 7	per 1000	..
Ornamental tiles ..	62 6	..	..
Hip and Valley tiles ..	4 0	per 1000	..
Riolen red, brown or brindle ..	..	..	..
do. (Edwards) ..	67 6	per 1000	..
Ornamental do. ..	80 0	..	..
Valley tiles ..	6 0	per 1000	..
Hip tiles ..	3 0	..	..
Selected " Perfecta " roofing ..	..	..	..
tiles—Pile tiles (Pile) ..	46 6	per 1000	..
Ornamental do. ..	46 6	..	..
Hip tiles ..	3 10 6	per 1000	..
Valley tiles ..	3 4 6	..	..
" Rosemary " brand plain ..	..	..	..
tiles ..	48 0	per 1000	..
Ornamental ..	48 0	..	..
Hip tiles ..	4 0	per 1000	..
Valley tiles ..	3 8	..	..
Staffordshire (Bainley) Beale ..	..	..	..
or Brindley tiles ..	42 6	per 1000	..
Hand-made sand-faced ..	45 0	..	..
Hip tiles ..	4 0	per 1000	..
Valley tiles ..	3 6	..	..
" Hartwell " brand plain tiles, ..	..	..	..
sand-faced ..	60 0	per 1000	..
Frosted ..	47 6
Ornamental do. ..	60 0
Hip tiles ..	4 0	per 1000	..
Valley tiles ..	3 6

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Do, brown ..	28 15 0	to 27 6 0
Distilled, refined ..	28 15 0	to 27 6 0
Oil, Spanish ..	28 15 0	to 27 6 0
Sea, pale ..	21 0 0	to 21 10 0
Cocunut, Cutch ..	44 0 0	to 44 0 0
Do, Cutch ..	42 10 0	to 43 0 0
Do, Maritima ..	42 10 0	to 43 0 0
Do, Lard ..	35 0 0	to 35 10 0
Oil ..	17 0 0	to 18 6 0
Lowland, S. S. ..	0 7 0	to 0 8 0
Petroleum, refined ..	0 0 0	to 0 0 0
Do, Archaean ..	0 19 6	to 1 0 0
Linseed Oil ..	0 3 7	..
Do, Turpentine ..	0 3 3	..
Putty (Genuine Lin.) ..	0 11 0	..
" Pure Linseed Oil ..	0 10 0	..
" Storty " brand ..	..	..

GLASS (IN CRATES).

English Sheet Glass: 16oz. 24in. 26oz. 33oz.	..	..	..
Fourteen ..	24s. 3d.	34s. 4d.	44s. 5d.
Thirteen ..	24s. 3d.	34s. 4d.	44s. 5d.
Fifteen ..	24s. 3d.	34s. 4d.	44s. 5d.
Hartley's English Rolled Plate ..	24s. 3d.	34s. 4d.	44s. 5d.
Figured Rolled, and Repossine ..	34s. 3d.	44s. 5d.	54s. 6d.

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TENDERS.

* * * Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BICHOFF-SSEA, NORWICH. — For the erection of a private residence for the Rev. J. W. Moore, M.A., M.B., Waring Young, M.S.A., Station Approach, Reith, Surrey, architect — 436 0 0

CHAIRMAN.—For the erection of international stores in Luton-road, Messrs. Baileys and Son, 5, Uxton's Lane, Stroud, London, W.C., architects — 437 0 0

Bainbridge and Son .. 437 0 0
Carter, H. J. .. 409 0 0
A. R. P. A., Thorne, House, High-street, .. 436 0 0
Hutchinson and Co. .. 455 15 0
Jernia, J. W. .. 400 0 0
Skinner, C. E. .. 427 0 0

* Accepted with modifications.

HOB-NAM.—For additions to grammar school for West-Saxon Education Committee, Mr. H. P. Roberts, A.R.P.A., Thorne, House, High-street, .. 436 0 0

Bridgeton, (Quintities by Mr. H. A. Grover, 32, New Bridge-street, E.C.) .. 427 0 0

Lindfield, H. and Son, Horsham .. 427 0 0
Hillman and Murrell, Horsham .. 2,687 13 0
Fryer, W. J., & Co., Fiddington .. 2,686 14 0
Langley, J., & Co., Crawley .. 2,678 0 0
Pekett, A., and Co., Crawley .. 2,688 0 0
Ellis, S., Guildford .. 2,685 0 0
Norman and Barr, Burgess Hill .. 2,690 0 0
Rowland Bros., Horsham .. 2,680 0 0
Valler, L., Horsham .. 2,590 0 0
Sandell, F., and Sons, Wokingham .. 2,678 0 0

* Accepted.

HEDDERFIELD. — For building Liberal Club at Abneybury, for the trustees, Messrs. Stocks and Selous, St. Peter's street, Huddersfield, architect. Quantities by the architect: ..

Boothroyd, J. W. .. 2367 0 0
Mason .. 345 0 0
Stansfield, J., and Son .. 121 0 0
Hall, S. .. 52 10 0
Joritt, W. E. .. 72 13 0
O'Neil Bros. .. 21 18 6Parker .. 71 11 6
Claydon, J. E. .. 57 0 0
Brook, Harrogate, and Wetherby .. 43 19 0
Taylor, J. H., and Co. .. 43 19 0
(Total, £1,355 12s. All of Huddersfield.)

WENTWORTH. — For the erection of new school at Wentworth, for the trustees, Messrs. Stocks and Selous, St. Peter's street, Huddersfield, architect. Quantities by the architect: ..

Harris, G., Abercromby .. 43 0 0
Jones Bros., Trebarrow .. 6,147 11 0
Smith, Jones, & Son, Pontypridd .. 5,218 0 4
Knox and Wells, Cardiff .. 6,001 10 4
Watkin Williams, Cardiff .. 5,989 0 0
Davies, Trebarrow, and Son, Cardiff .. 5,972 0 0
Williams and James, Pontypridd .. 5,971 0 4
Jones, H., Cardiff .. 5,961 10 4
Evans, E. R., and Sons, Cardiff .. 5,962 0 0
Bent, F., Cardiff (accepted) .. 5,951 0 3
(Architect's estimate, £5,900.)STANBROOK.—For the erection of school 186 places, for education committee, Mr. C. Williams, Moorhead, Newmarket, architect .. 43 0 0
Tait, R., and A. P., Sator .. 43 0 0
Bent, F., Cardiff (accepted) .. 43 0 0
(Accepted, Lowest of 2 tenders received.)

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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PRIZE DESIGNS AND DRAWINGS AT THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual display of students' works in competition for the medals and prizes offered by the Institute was opened on Monday evening last, and will remain on view till February 5 next, free to the public, in the galleries at 9, Conduit-street, W. The Smeaton Medalist subject this year was a Guildhall to seat 1,200, with galleries, a smaller hall to seat 400, a banquetting-chamber for 200, and a suite of reception-rooms, committee-rooms, kitchen, and the rest for administrative accommodation. The building to be monumental in character, and to be in a public park set back 100ft. from the road. There were thirteen competitors, and most of the schemes may be said to have more or less seriously dealt with the problem. It was certainly a good competition; but not one of the thirteen competitors has produced a scheme quite worthy of the Smeaton Medal and one hundred pounds. So the Council, not wishing to withhold the prize, has decided to award the money in equal shares—for three months' travel, instead of six—to the authors of designs marked "Ante" and "Circle City" (Mr. Piet De Jong, Albert-street, Regent's Park, and Mr. W. Friskin, 152, Kensington Park-road, respectively). We quite endorse the adjudication of the committee, though we are not surprised to learn that the decision was only arrived at after protracted consideration. The subject has been so diversely handled, and so many serious mistakes made, that the balance of faults and merits must have been a nice problem.

"Circle City" occupies a long frontage with a range of buildings backed on plan by a domed hall, surrounded by crush-halls leading out of a balcony corridor on the first floor, and on the ground floor below there are cloakrooms and entrance-halls, divided by four intermediate staircases, which, however, have no direct exits in case of emergency. In front of the guildhall, and divided from it by a colonnade, is a very capacious assembly-hall, opening into an entrance vestibule. Stairs at one end branch right and left, leading to a reception-hall, with a large well-opening in the midst of it, to light the floor below, and a domed ceiling occurs above. Overlooking the frontage, a suite of reception-rooms leading out of the before-named reception-hall, which has no connection with the guildhall, excepting to the gallery devoted to private boxes, facing the orchestra gallery. No con-

veniences are available for the private-box-holders, save by going through the grand reception apartments. The small hall is located to the right, and the banquet-room to the left. The former has corridors on each side, and on one side only of the latter, with a colonnade to match on the other side, forming an aisle leading to a small lavatory. This, as a complementary feature in balancing arrangements, has a "wash-up" place at the end of the service corridor, the service-room being at the other end, alongside of the guildhall, with a range of lifts to the kitchen. A restaurant of indifferent shape occurs in a similar position on the far side of the guildhall. Artists' rooms occupy the extreme end of the smaller hall wing, with conveniences for both sexes. These are wanting to the big assembly-hall orchestra platform. To the rear of this stage-space, and facing the park, is a huge niche with a group of statuary quite out of scale with the building, while in the perspective it distorts the contour of the dome so badly as to give the impression at first sight of only half a dome being intended. The body of the hall is colonnaded, and to the centre of the front facade is another Tuscan Order colonnade rising on a podium pierced by five segmental-headed doorways—the main entrance from George V. avenue. The lunettes lighting the guildhall and piercing the base of the cupolas do not show on the outside, being hidden by parapets rising above the external walling colonnaded round the main building, as already mentioned. No lantern crowns the dome, the soffit of which is offered with bold rib-like surfaces panelled more largely to give a structural effect of strength, to which we take little exception, though purists might do so, as the lunettes alone seem to justify such a special treatment, the walls below being simply continuous and unbroken by piers, suggesting the emphasis of ribs. The committee-rooms are relegated to an attic over the front-space, and have no outlook save on to the "roads." The scheme is refined and good in detail, excellently drawn in the half-inch sheet, with crispness and feeling; but the front wings look incongruous with the domed hall, and are not helped by this perspective of facade alluded to. The factory scene in the distance scarcely furnishes a becoming adjunct to a monumental work of this character.

"Ante" (bracketed with "Circle City") sends a square guildhall, with statuary niches cutting off merely the angles. Four transepts provide for three galleries and the organ, with an orchestra tribune. A

large entrance-hall, divided into three bays by a double range of pilastered piers, has a fountain in the central compartment. Over this hall is a gallery for reception; but three well-holes detract from its dignity and space, while the two stairways down from thence are set to the rear somewhat awkwardly, with wide steps, extending between the columns, forming an approach to a narrow half-space landing where the staircase proper begins. Corridors extend on either side of the guildhall, and terminate by the flanks of the organ transept. The left wing is devoted to the banquetting hall, and the suite of reception-rooms are placed in the right-hand wing. This gallery transepts open into these side corridors and into the reception cortils in the front—if we may employ that term. Four little areas for light intervene at the four cardinal points of the guildhall on plan, and serve to illuminate what are called "retiring" spaces out of the rambling corridors on the ground floor, wastefully sacrificing space in the dark round about the auditorium. The small hall is below the banquetting-chamber, with a "foyer" and crush-hall at the foremost end, a reception-room for artists being placed at the rear. A circular café adjoins to the last-named balances an oval-shaped "lounge" on the other side of the orchestra entry in the plan, which has a recessed "circle" or vast portal, with a colonnade projecting into the park in a palatial sort of way, out of scale with the rest, and meaningless really in purpose. The conveniences for the chorus are inadequate and singular in form, squeezed in, without air and light. No lavatory accommodation seems to be provided in connection with the committee-rooms or retiring-rooms. The guildhall appears to be too subordinated to its sumptuous surrounding attachments. It is for the chorus occur on the top floor, flanking a gallery for the orchestra which is situated immediately over the organ. The "tribles" in the basement and enormous cloakrooms adjacent are devoid of light and difficult of access. The guildhall is lighted by lunettes in the ends of the three transepts, and seem hardly sufficient. Architecturally, this design by Mr. de Jong is unequal. The Caryatides, set of tall pilastered piers, to emphasize the facade, supports a projecting cornice and rich entablature, give a stilted effect, particularly as exhibited in perspective. In the detail drawing the parts are intended to set out to obviate this, but as a staidity in execution. The terminating pavilions of the elevations look pinched and incon-

sequenial, and, while strength and breadth are comparative. The attic over the guildhall, masking the glazed dome sky-light, has the effect of a tank, to speak plainly. These marks may appear severe, and yet not one of the other competitors can claim to have exceeded the merits of both "Circle City" and "Antae" though perhaps in the matter of draughtsmanship two of them have done better.

What, after all, is the use of elaborate drawings if they only serve to confuse the competitor, and hinder him from grasping the fundamental essentials of capable building? After all, it is architectural expression in the executed building that alone makes fine architecture; and cleverness as a draughtsman may be, a really able conception depends upon something nobler and far different for its successful embodiment. It is pitiable to see so much waste of energy displayed in faking up deplorably poor designs, such as the result of the schemes display.

"Sailing Ship" (olive) placed next for a Certificate of Merit, is open to the same objections as the last, though the author, Mr. C. A. Harding, of Glasgow, is, no doubt, a most skilful delineator, who has worked out his scheme excellently, so far. The pity is that the proposal is inherently faulty, far too ambitious, and, in parts, abundantly wasteful, as in the vast engine-room in the basement. The whole conception is grandiose, and the built-up tower bears no relation to the purpose of the problem. The effect produced suggests a Late Classic Church, enclosed by civic surroundings, and the guildhall thus shut in, looks as if it would be very dark. On entering the portico, the visitor reaches a colonnaded vestibule, out of which is a circular hall, with stairways branching right and left, and beyond this "staircase hall" is a further one, assigned to receptions, with duplicate stairs, presumably landing at the sides of the organ and platform recess in an awkward manner, and if this be so, quite out of harmony with so grand an approach from the reception place thirteen steps below. There are three other great vestibules on the ground-floor and capacious cloak-rooms in addition to minor ones, with a robing-room of doubtful use, committee-room, also on the ground-floor, and a range of reception-rooms set in a segmental line of the frontage. The dining-room and small hall are on the first floor.

"Vista," by Mr. Bertram Lisle, is placed also for a Certificate of Merit. He puts his hall parallel to the frontage, which is treated cleverly with a colonnade between, and pavilions which above mark the minor hall and banqueting-chamber. The single portal lacks importance, and leads into a vast corridor-vestibule, out of scale with the entry itself. The stairs facing the front door rise in the base of the tower, encumbering the approach to the guildhall behind it. The double colonnaded portico, however, introduced as the grand way to the assembly-hall, is situated at its end on the right, and thus the two main portions of the establishment are divorced one from the other quite unnecessarily. The auditorium has big galleries at either end. The ladies' and gentlemen's cloak-rooms are in the basement, but we are left to wonder how managed and how lit. The corridor continuous to the reception-rooms is designated as a "pen-hall," and is quite unbecomingly ornate these apartments. The balcony entrance, out of the portico to the concert-hall, to imply a more correct designation, are devised, if contrived and awkwardly so, for efficient working, being really only lifts for emergency exits. The elevations are

distinctly able, in the favoured mode of Renaissance, making a set which at first sight impresses the eye, and the layout is attractive as the result of thought and capable detail, suggesting a workmanlike scheme. We were sorry to come to a contrary conclusion, owing to its lack of unity of purpose displayed.

"Exuperia Deceit" sends a built-up impossible proposal, towering in proportion for the sake of mere florid effect; but the details of this "Fancy Brank," somewhat Egyptian in origin, display refinement and study, though the ineffectively drawn full-scale sheet does the work sparse justice. The plan is far too over-elaborated with columns.

"Sign of Black Fish" is cruciform in plan, with wings occupied by the smaller hall, banquet-room, offices, and the entrance. Four vestibules intervene very ingeniously with cramped lavatories, and there are indifferent stairs. The design is half Classic, unattractive in detail.

"Dragon" sends foolishly rough drawings in pencil, the wall sections being red, and the shading up in Reckitt's blue. Enormous corridors, and an unduly tall guildhall, having an attic lantern above, mark this design, handled with severity in the Classic mode. The hall rises over a pierced podium occupied with minor rooms in two floors, with restless effect and many skylights. "Oo Toroe" is a cruciform compact design comprehended by a square on the ground-floor, with transepts above, and the guildhall being crowned by a dome supported by minarets at the corners, effectively displayed by a bird's-eye view. This is generally a well-worked-out scheme. The reception spaces, other than the entrance-hall extension, are totally dark under the gallery, and more faults could be named. "Fraternity" is wasteful, with long, narrow, dark passages leading to a stupendous entrance-hall, with promenade absolutely devoid of light. The drawings are too good to be by a prentice hand, but the whole conception is overdone and out-of-the-way laboursome, which is a pity.

THE TIE PRIZE.

Eleven designs for this Studentship are devoted to "The Central Courtyard of a Royal Exchange covered by a Roof." There can be no doubt whatever as to the premier design, and Mr. Louis de Soissons, of Beaufort Mansions, Chelsea, has secured his position on his merit, as shown by the drawings marked "Red Lion." The plan is oblong, with aisles round the covered-in courtyard, including a fountain at the end of the arena. A gallery extends round behind a lofty colonnade, carrying an enriched entablature and coffered ceiling, with middle skylight, simply and well treated on the flat. The segmental arched openings on the ground-floor are filled with iron grilles. The effect of the interior evidently is intended to be viewed from the gallery level. The style is French, excellently refined and detailed, likewise well drawn.

"The Circle" (Mr. T. H. Chalkey, of Bermuda) takes a certificate of merit with a beautifully wrought set of delineations, but his circular "yard," more like a Hall, has about a couple of dozen small, circular-shaped minor halls or apartments grouped round very ingeniously, but bewildering for Exchange facilities where men in it for business. "Dum Spiro Spro" follows the lines of the prize design, but his aisles would look too lofty, there being no gallery level. The sculpture is not skilful, and the detail is well put in. "Centus" has a round Hall, with a gallery set over an arched ground stage, designed well, with precise and accurate drawings, which, if a trifle hard compared with some of the others, do the author

credit. "Gragalah" touches in colour well, and has broad architectural ideals above the grasp of some of his fellows, his failure, we think, being that he has conceived a hall rather than a covered courtyard. His aisles are too big and dark below stairs, and the stairs are ill-considered and accidental. "Black Cat" falls from the same hall notion in lieu of a courtyard, though he has abilities which should inspire him to try again. "Hampton Pallholders" better presumes a court by the sort of external embellishment to his mural treatment, which in its parts is too small. The hall effect predominates.

THE INSTITUTE SILVER MEDAL FOR DRAWINGS.

Five competed, and "Zeta" (Mr. A. E. Maxwell, of Chelsea) wins out and away by his thoroughly practical and well-studied set of drawings of Compton Wynnyates, Warwickshire, the famous and beautiful brick and timber Tudor mansion, of which, originally, Sir Wm. Compton was the architect in 1520. The plans are chronologically coloured, so that one may read the dates at a glance of the several additions to the house, and the Queen Anne extensions. The details are excellently put in, all by pencil, and tinted here and there, with details of portions at large. The series is entirely good, but any reproduction satisfactorily to small scale is very doubtful. Mr. W. M. Keesey and Mr. Arthur B. Allen won Certificates of Merit for capital sets. The church of Santo Spirito, Florence, by Mr. Keesey, and the Lantern Octagon at Ely by Mr. Allen are both extremely good.

THE PUGIN STUDENTSHIP.

This Silver Medal and £10 attracted nine competitors, five of whom were rewarded deservedly. Mr. James Macgregor, of Hampstead, wins "The Pugin" well in the face of strong draughtsmen. His work is certainly the best. Holyrood Chapel, St. Monan's Church, Fife, Sherborne Abbey, Beverley Minster (transept and stairs), Abbot's House, Machelney, and Queen's Camel Church, Somerset, show sufficiently the varied types he has measured and sketched. Messrs. C. Peake Anderson, W. J. P. Jones, J. R. Leathart, and R. Norman Mackellar win certificates of equal value, and they are to be congratulated.

The Arthur Cates prize has been won entirely successfully by Mr. J. B. F. Cowper, whose diverse styles of subjects depicted by his drawings show how well he covered the ground of study set before him.

The Grissell Gold Medal is justly accorded to Mr. Thos. Braddock, of Wimbledon, for the Exhibition Building in iron and concrete, marked by motto "M.C.M.XII." An octagonal picture-gallery, flanked by two oblong ones, may be rather reminiscent of the Great White City, perhaps due to the domed pavilion over the entrance; but it is a good set of drawings, and well worked out. "Fer dans Blanc Manges" is the best of the other three schemes submitted.

The Owen Jones Prize is given to Mr. Noel H. Leaver, whose coloured studies are beautifully executed. They are chiefly from Italy, and the mosaic study caused much comment, though we can but feel such elaboration is hardly needed really, and we fail to realise to what end, if adopted, it is actually to lead—much as industry and adroitness may be admired.

A new school of Science and Technology has been opened in Burton-on-Trent. It adjoins the public library in Union-street, and provides accommodation for students in painting, plumbing, and decorating. The total outlay was £4,000.

REINFORCED-CONCRETE BUILDINGS.

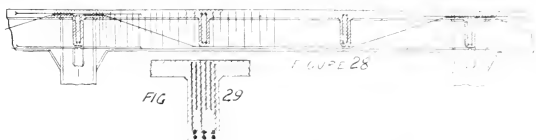
By Wm. G. SHIPWRIGHT, Lic.R.I.B.A., M.C.I., and Chartered Building Surveyor (by Exam).

ORCHESTRELLÉ FACTORY STORES AND OFFICES AT HAYES.—(Continued.)

(Walter Cave, F.R.I.B.A., Architect.)

The plan, Fig. 4, given in last issue shows the general arrangement of beams and columns adopted in constructing the small block comprising the Music Roll Factory, of which Fig. 2 is the general view. The scheme of construction has been varied somewhat from that adopted in the Pianola Factory, described in detail in the last number, and a central line of rectangular columns support the main beams in lieu of the dual range employed in the former instance. The beams, having a span of 24ft., are, however, constructed on similar lines to those in the Orchestré Warehouse. One of the most interesting, illustrating the principle of continuous beam-construction, is shown in Figs. 28 and 29. These beams, which are 31in. deep and 12in. wide, have six heavy tension-rods in the central 10ft. of the 24ft. span between the columns, with stirrup-hangers at 6in. intervals. The three rods comprising the upper row are turned diagonally up into the compression area, split and forked at the ends, and securely wired over the supporting columns, thereby securely linking up the tensorial reinforcement in the centre of the span with that above the columns. The distance between the hangers is gradually decreased to a minimum of 3in. above the supports by way of additional provision for the increasing shearing stress. Fig. 29 shows an enlarged section taken at the centre of the span. The secondary beams shown in section on Fig. 29 have in this case a span of 23ft., so that each column has to support a floor area of nearly 25ft. square, making a total of 625 superficial feet, which, calculated on a basis superimposed load of 4cwt. per foot super., produces a load of 125 tons on account of each floor, and about 60 tons from the roof, making a total of over 300 tons on the foundation.

Under these circumstances, this ranks probably as one of the most heavily-stressed pieces of construction in ordinary warehouse work erected in reinforced concrete, and the type of column provided



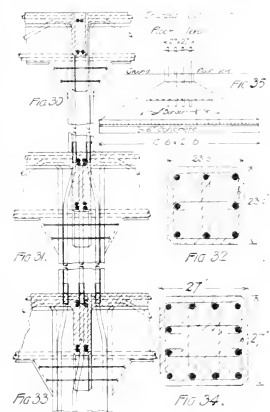
floor column is 27in. square, provided with twelve rods, linked and cross-linked at 6in. intervals in the manner indicated in cross-section (Fig. 34). The foundation, which is calculated on a safe loading on the gravel bottom of 2½ tons per foot super., is common with all the foundation-work, is shown in Fig. 35. A total superficial area is secured at the base of 150ft., and in a depth of 4ft.; two lattices of rods are disposed respectively at depths of 18in. and 3ft., with vertical hangers the full depth of the foundation. A preliminary bed of 8 to 1 concrete has been provided in a similar manner to the stanchions in the Orchestré Factory to secure a good bed for the foundation proper.

A special drying-room has been constructed for the purpose of seasoning the wood employed in the Orchestré Company's pianola manufacture. The principle of the system consists in the circulation of heated air through the chamber shown in the plan (Fig. 36), the moisture being removed from the air extracted from the chamber in the process of circulation, and the dried air reintroduced. The chamber is divided into three separate sections, each provided with an inlet and outlet apparatus worked from a central system.

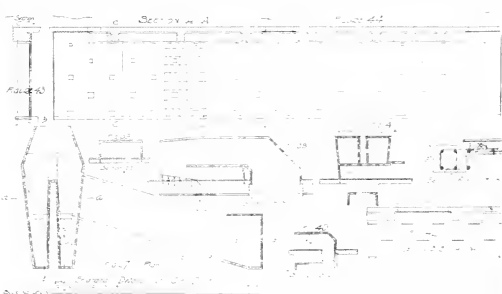
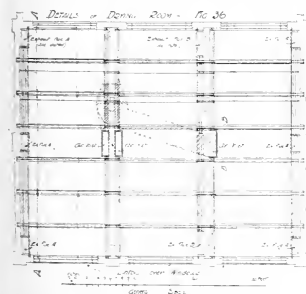
The series of inlet-shafts are arranged in the centre of the chamber in the position shown in the plan, and supplied by means of the main trunk above the chambers shown by hatched portion in Fig. 36, and in detail Figs. 37 and 38. This trunk is formed in 3in. of concrete and thin lattice-rods, this method being the most applicable to the forms required. The main trunk supplies three branches, each measuring 4ft. by 1ft., shown in the details Figs. 39, 40, and 41, and the whole work, with the numerous angles and junctions, has been very satisfactorily executed in the manner indicated, and has stood

without any signs of cracking or other detrimental effects at the upper corners, and the remaining area is attached to the right-hand division. These are formed in the manner shown in Section AA, a cross-section through the shaft being shown in Fig. 43. The apertures, which in this case are square in form, are also reduced in size in the upper

Two of the inlet-shafts shown in Figs. 43 and 44, which do not have the same



width of the chamber, are constructed on either outer wall, and the remaining area is attached to the right-hand division. These are formed in the manner shown in Section AA, a cross-section through the shaft being shown in Fig. 43. The apertures, which in this case are square in form, are also reduced in size in the upper



is shown in detail in Figs. 30 to 34. The upper section, supporting the roof (Fig. 30), is 12in. square, with four large reinforcing-bars. The section below (Figs. 31 and 32), taking the second floor and roof, is 23in. square, and has eight large, closely-linked rods; whilst the ground-

extremely high temperatures without any part of the shaft. This shows that cracking or other detrimental effects of the three branch inlet-trunk supplies a separate shaft, traversing the whole width of the room, constructed in the form shown in Section BB, Fig. 42. The shaft through which the heated air is

part of the shaft. This shows that cracking or other detrimental effects of the three branch inlet-trunk supplies a separate shaft, traversing the whole width of the room, constructed in the form shown in Section BB, Fig. 42. The shaft through which the heated air is

It will be seen from the above that the

it is obvious that any colour expressed in angular forms must convey a different decorative sense from the same colour displayed by rounded forms. Herein lies a very subtle problem for the decorator, and one that has not hitherto been considered in its fullest significance; for we must describe colour by a form, for colour cannot be expressed without form. All form is expressed by the figures of the straight line and the curve. It necessarily follows that nothing can be expressed without them. It is in the difference of these figures in conjunction that the various orders of architecture or design have their origin. Nothing can be expressed without them, but within the possibilities of their variation lies a field that no man yet has exhausted. We have accepted the conjunction which expresses various orders of architecture, and have accepted such orders as standards because they are governed by conditions created by their own demands. We have associated the conjunction of straight lines, the simplest figure possible having the triangle as its basis, with the simplest form, the simplest figure possible in the use of lines, but because it is suggestive of something which lies outside, and points to the outside and beyond. The curve, on the contrary, completes its figure alone. The circle it describes is associated with completed things, and is materialistic; the incomplete always suggests possibilities. The complete is final. Bearing in mind the association with these primitive figures, we at once see that upon architecture, and upon mural painting the association of line and curve should be supported, and the painter should not endanger the object he has in view by selecting such forms as are unfit to express a conjunction of colour or to support the mental impression aroused by the architecture. He must not only discover what form will best express each individual colour, but be conscious of the difference of effect between the forms we have brought into conjunction. The question arises, "What is the best form, the most suitable form, by which we may display a particular colour at its best? That is a difficult question to answer even in a single instance, but becomes much more difficult and complex when there are several colours to be placed in conjunction. After solving this problem as far as colour is concerned, we have then to consider if the conjunction of colours we have accepted suits one as that will conform to the special conditions of the building to be decorated. This is a difficulty, and one presented to the painter with varying results, according to the conditions presented by each particular building. The full value of decoration is often marred by the intervention of some outside authority, who is frequently moved away from the object of illustrating the history of the town or country, and who, in the consideration of fine decoration, it is unkind to the painter and the architect to have the ensemble spoiled by the insistence of the illustration of some incident that cannot conform to the purpose of decoration. We can imagine a design for a decoration in which the dominant colour cannot be displayed on account of considerations of the subject. The painter has then to consider the problem from another point of view: he may have so arranged his colour, that by their juxtaposition he may be able to convey the impression that the dominant note is sustained. In some cases, when Turner was not able to give a sufficiently large area to balance his composition, he placed a point of smaller dimensions with increased strength, and so, that means, a sense of completeness is attained. This fact may be useful to the decorator. The weight or intensity of colour would be also just the strength that helps the purpose. Where a knickerbocker history to record on its walls, but reserves history for its literature, the artist might be asked if it were not possible better to satisfy the claims of the architect if he substituted decorative landscape in place of the illustration of an incident. It would give the painter a wider scope for a more personal expression, and he would be free from the

conditions that so often make decoration a failure; for his materials are more at his discretion, both in form and colour, and if he succeed he will not fall into the difficulty of attracting unduly the attention of the spectator from the beauty of the architecture. In conclusion, Sir Alfred appealed to those who have the responsibility of designing a great public building to bear in mind the conditions which must govern the mural painter, and, on the other hand, to the mural painter to consider that the architect has a right to expect that he should be supported in his architectural ideal. Mr. Edgar Wood, in his paper, said: "In thoughts upon colour, unconsciously one is drawn to the East, where colour has received its greatest development and its greatest achievement as colour, where it has produced its most powerful appeals. Wherever we have been arrested by a beautiful colour scheme, even here in the remoteness of our own country, upon examination we shall discover that in the majority of cases it owes its origin to the East—that is, that it has been a part of our making, but that it has percolated through many ages, many adaptations, many human contrivances; but still its original germ has only been manipulated, and never entirely destroyed. Its intensity of appeal has been so convincing that it has survived all the processes of adoption and use, and its original foreign vitality still remains its strongest attraction. So, if colour has been so powerfully endowed in the somewhat lowly province of pattern, one is inclined to turn to seek out what its cover has been in the greater and broader scope of architectural embellishment, and we shall find that in this direction it has lost little of that same pertinacity that was noted in its smaller path. It has come, it has seen, and it has conquered. For a comparison between the Greek or Gothic use of colour as compared with that of the East resolves itself into a conflict between two opposing ideas, the one representing the expression of form and the appeal of colour, and the other because they represent two irreconcilable intentions. Colour is emotional, appealing to us by its emotional and sensuous faculties. It represents nothing in itself, and is dependent upon the emotional feeling it produces and its rightful appeal to sensuous sensibility, whilst form is intellectual, and its appeal is the outcome of reason. Greek work as known to us is restrained on the emotional side, nor is it any touch of mysticism. This was always secondary to form. This tendency fitted in naturally with the general character of Greek Art, its definiteness and its intellectuality produced the most subtle appreciation of form, and so where the Greek used colour he used it merely to define and accentuate that form—that is, he used it *decoratively*, subordinate to shape and limited to outlining and defining the form. In the East, on the other hand, with Gothic art, it was used to decorate wall-surfaces, mouldings, and architectural features, sculpture and carved ornaments being richly and brilliantly coloured, but always with the full intent that form should still retain the dominant position. Colour never encroached upon, or was permitted to invade, the province of structural expression. In the East this is entirely the reverse: all is sacrificed and surrendered in order that colour may become the all-powerful appeal. It was thus that the great colourists employed their great emotional appeal, and of which Venice is rich in its illustration. We recognise it amongst its painters, where the colour and glow of a Titian and a Tintoretto are precisely the same in purpose as the interior of the great basilica of St. Mark's. Turning to domestic work, one problem that all architects have to consider is the right colour and the right use of the walls, and this will assist the easel picture—or, as some would say, to minimise the defects of the same. It is often the problem of combining two distinct and conflicting principles. For it is the instinctive desire of all dealing with structure to give their work a lasting and permanent effect, to avoid any sense of detachment, unfixedness, or looseness, that the line shall be

drawn sharply and logically, to give structure and portability, and that the easel picture shall always be treated as a mere decoration, reducing as far as possible the decorative extent of the movable. When, however, it is considered with the main design of structure, such as the walls and ceiling, of the strongest outlet. It is here that the architect has exercised his faculties to express in such that his walls shall be strong and look so. So, even window and door openings, which might produce local dimness and strength are taken in advantage of and made to show and even to accentuate the richness of the walls, whereby the sense of strength may be increased and intensified. To retain the fundamental and imperative sense of security of structure constitutes the real difficulty, for the introduction of the easel picture undoubtedly tends to destroy largely this mural strength, not only by its sense of portability, often again by its subject, but more often by its treatment of subject. So, it affects the result, naturally, but it is only a question of degree. The objects of the easel pictures and frames being out of proportion to their spaces and walls is only an accentuation of the difficulty. Many consider that all this is only a question of treatment, and that the easel picture, properly considered and placed in its right relationship to its surroundings by judicious treatment and hanging, may be the acme of decoration; but this is hardly convincing. That thoughtful consideration in hanging, framing, and so on, may minimise much of the objection is admitted, but, however well marked, there still remains sufficient of the difference of aim and habit of mind of the two intentions—the fixed aim of the architect, or constructor, and the divorced and isolated thought of the painter. The want or absence of this relationship of the easel picture to the conscious decoration of which all schemes of design consist, and which also extends to the portable furniture, does not, however, remove the objection, as it must be related to something. If a sincere work, it is related to something in the painter's mind, and, again, it is related to the studio; but it is impossible that it can be related to the walls, and rarely is it related to the decoration. "The portability," Mr. Walter Crane writes, "of the easel picture has much to do with its unrelated character. Though the word 'decoration' is frequently used, it is difficult, if not impossible, to actually define its limitation. It is, in consequence, employed in many and distinctly different ways, and certainly to many paintings of very different treatment. It is generally accepted as embodying a simplifying of masses, a flattening of treatment, curtailing a tendency to absence of shadow, confinement to simple planes, careful composition in the proportionable filling of space, all combined with architectural dignity or structural feeling by form and line, producing a mural feeling and a mural rest. There can be no stronger guidance to decorative effect than the influence upon the painter of the walls themselves, provided he will allow their unconscious appeal its full scope by executing the work upon the spot. The argument that easel pictures, however realistic, are in this respect no different from the effect of what is seen through windows, would be answered by the fact that windows which are intended for exterior prospects are not always helps, but rather destroyers. Ideal decorative effects, and the most successful lighting is when the source is high and concealed. Again, most architects guard against the realistic effect of window views by the treatment of their glass areas, such as limiting them so that the sense of opening shall be kept within scale and the architectural sensibility shall always be dominant. The decorator, on the other hand, is often induced to employ drapery as frequently offering a satisfactory compromise. The drapery can be rich or simple, according to what it has to receive. Much, again, will depend upon the character of the drapery in respect to the folds that it will in itself form by the weight of its own material and hanging; and this, again, will be controlled by the size and scale of the pictures and the surrounding

honorable mention to "Sailing Ship," C. A. Harding, jun., 45, Kingsland-street, Hillside, Glasgow; and to "Vista," Bertram Lisle, 43, Devereux-road, Wandsworth Common. Thirteen competitors.

Ocean Jones Studentship: Certificate and £100 for travel and study of colour.—Noel H. Leaver. Two competitors.

Pugin Studentship: Silver Medal and £40 (for travel in the United Kingdom).—James Macgregor, 42, Laburnum-road, Hampstead, N.W. Certificates of honorable mention to C. Zeke Anderson, W. J. P. Jones, Julius R. Zeharth, and R. Norman MacKellar. Nine competitors.

Italy-Subject: Certificate and £50 (for travel in Italy).—Subject: Design (according to the methods of Palladio, Vignola, Wren, or Chambers) for the Central Courtyard of the Royal Exchange Covered with a Roof.—Red Lion.—Louis de Nojones, 29, Beaufort Mansions, Oakley-street, Chelsea. Certificate of honorable mention, "The Circle," Thomas H. Chalkley, 42, Orange-road, Bermondsey. S.E. Eleven competitors.

Prize: Cates Prize: Forty Guinea.—J. B. F. Cowper, A.R.I.B.A., 96, Heath-street, Hampstead, N.W. Three competitors.

Grissell Gold Medal and Ten Guinea (for Design and Construction).—Subject: Design for an Isolated Exhibition Building.—M.C.M.XII.—Thomas Bradcock, 169, Merton-road, Wimbledon. Four competitors.

Godwin Bursary, Silver Medal, and £65.—Jeffrey Lucas.

Prize for 1911. £10 in books.—Philip Dalton Hephworth.

The Secretary added that the Council had examined and approved the drawings executed by James Bertie Francis Cowper as Pugin Student for 1911, who travelled in Northants, Rutland, Lincolnshire, and part of Norfolk.

The President announced that at the next meeting, to be held on February 5, the Presidential address to students would be delivered, and Mr. Gerald C. Horeley would send a criticism of the works submitted in competition.

COMPETITIVE WORK PREPARED IN ARCHITECTURAL SCHOOLS.

Immediately afterwards a young man rose from the back of the hall and asked if it was right that designs for the Institute competitions should be prepared in architectural schools.

The President asked if the gentleman had any information to communicate.

The interrogator replied "No," but that he thought the practice he referred to was not fair.

The President replied that the business of the meeting was now concluded, and that if the gentleman who had risen wished to make any representations he should be pleased to give him an interview at his office next day.

SIR CHARLES NICHOLSON ON CONSTRUCTION AND DESIGN.

In Wednesday, the 17th inst., Sir Charles A. Nicholson, Bart., read a paper before the Manchester Society of Architects on "Construction and Design." There was a very large attendance, and the president, Mr. Edgar Wood, occupied the chair.

Good construction and good design. Sir Charles Nicholson said, are equally necessary elements of our art, and therefore it is worth while to turn our attention to well-known buildings where the union of the two elements can be easily followed. He could confine his remarks that night to Gothic work. One point became obvious, that, as cathedrals were built in a leisurely way, each section, and even each bay, had to be structurally independent and self-supporting. Norman buildings lent themselves to this gradual method; but in Gothic structures strong temporary abutments had to be provided. The weakness of Norman buildings was due to the bad material rather than to thrusts. The collapses of Winchester, Chichester, and Ely towers were due to this cause. The weakness of Gothic structures was that they were maintained in a precarious state of equilibrium which approached instability.

Sir Charles then proceeded very minutely to analyse the development of Gothic construction, first as regards the relation of buttresses to the vaults they supported, then

as to the development of the vaults themselves, and finally the evolution of the apse plan, paying special attention to the parallel process of evolution in England and France. Many points of interest in the construction of Wells Cathedral were instanced, and a section of the tower which was thrown on the screen was specially interesting, showing how the upper stages had been built as high as possible, and how the piers below had been strengthened by the well-known strainer arches, and the solid roof over them, and how the tower was latterly stiffened by the filling up of the long lancet windows of the lantern. The ingenious way of augmenting the thrust of the eastern flying buttresses was illustrated. The lower portion of the buttresses, which are received by the slender marble shafts in the Lady-chapel, are built with courses oversailing towards the west. After a survey of the period of fan vaulting, the lecturer came to the application of the principles which we could discern in the old work to modern construction. How modern materials should be treated was a question still awaiting solution. Slides of ferro-concrete buildings, where the concrete was honestly shown, and the monolithic nature of the structure expressed, were exhibited, and much appreciated by the audience, most of whom recognised Sir Charles's own work in Jamaica. In concluding, the lecturer said that the present generation of architects was capable of evolving artistic solutions of each and every problem that arose; but they should make use of the large supply of knowledge that was to be gained from the stupendous works of the old masters of our art.

MR. MAULE ON ARCHITECTURAL EDUCATION.

On Wednesday, the 24th inst., Mr. H. P. G. Maule read a paper on "Architectural Education" before the Manchester Society of Architects. The broad basis of education, Mr. Maule said, was not the superfluous equipment of the giant few, but the sound, sane, and sober training of the many. Specialisation is increasing; but it should be based on a broad and solid foundation of general knowledge. The more everything tends towards specialisation, the longer must be our apprenticeship. He felt that there had not always been sufficient regard paid to the psychology of education—the induction by training of certain habits and qualities apart from the particular objective.

When a student is brought from practical training to the forced draught of the school he gets general and special knowledge in an artificial and tabloid form, at the expense of training in initiative and self-reliance, and in observation and deduction. This system is, then, doomed to failure unless the student is brought into contact with the facts of actual experience which he will afterwards find in the general world.

There is a general feeling among educationalists that our systems fail in this regard.

In addition to neglect of this aspect, there is a tendency to confuse the issue of general and specialised education. The highly-specialised forms of architecture have been regarded as the goal of art. He referred to the erroneous impression that monumental design should form part of the first four years' course. Is there any recognised training in the arts, sciences, or profession in which the highest ultimate problems were given at an elementary stage? It does not follow, however, that because monumental problems are relegated to an advanced stage that the qualities which underlie the production of great architecture would be neglected. They would be insisted upon from the commencement in problems, however simple and small in scale, with a view to the ultimate larger conception of monumental architecture.

The chaotic state of opinion is shown by the report of the Board of Architectural Education recently issued in the Journal of the Institute, which, while containing much that is excellent, suggests an amount of ground to be covered in four years which is

simply abnormal; and the matter is further complicated by the present state of architectural politics. He felt, however, that the definite idea as to the real objective must be found.

He thought the following main principles should be recognised:

(1) The compulsory insistence on a general training of not less than four years, in which should be passed in an architectural school. The standard might rank with the present intermediate papers.

(2) The formation of machinery for more advanced and specialised study, the first grade of which should rank with the present final papers. The remaining advanced courses would be of the nature of specialisation.

(3) Greater time for study by all who wish to do more than acquire a minimum standard.

The whole question hinges upon the preservation of the functions of the architect, and the recognition of the fact that architecture is structural and decorated, and not a decorated art constructed, a living, pulsating structure; not scene painting in stone, with the engineer as stage carpenter. The essential qualities of the general education should be: (1) Scientific study of materials and construction in their elementary form. (2) Analytical study of past building methods and architectural expression, and the deduction from them of the broad principles of design. (3) The application of the above—the production of design from knowledge and study of principles. The study of the humanities of art should form part of the training from the very first.

This general training, he was sure, from a varied experience, could not be mastered by the average student in less than four years.

CHIMNEYPIECES AND INGLE-NOOKS.

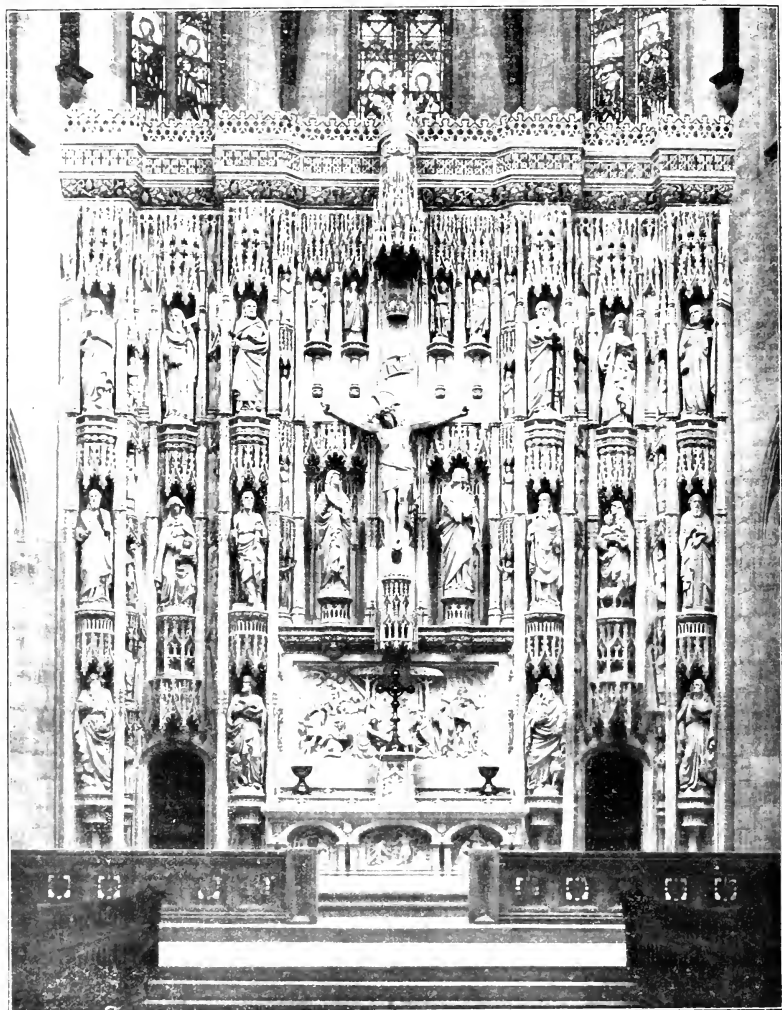
Place the coalwipers and the miners—whose quarrels, rendered more fatal as regards consequences to ourselves by the extortion of the middleman, may quite conceivably make the open fireplace the costly luxury of the millionaire ere many more winters pass—the fireside will ever remain the centre of the Englishman's domestic joys and comforts. Provided always he is not scared therefrom by some of the up-to-date "brongle principles" and "cosy corners" in what Mr. Rothley calls the "glorified cottager style" of the garden suburb.

His book, therefore, is a useful one, chiefly by reason of its many illustrations of examples of all dates from the 15th century downwards. Most of them, of course, are familiar to our own readers, who may not always quite follow Mr. Rothley's criticisms, even while smiling at their piquancy. As he says (p. 14), "there is always danger of playing the sedulous ape," and it is possibly quite as true of some of us as of the men of the 16th and 17th century that "decided incoherence of design and incongruity of decoration" are not inseparable from our latest expositions of the Renaissance.

However that may be, those of us who have had the luck to live in a decent, well-built 18th-century house will probably agree that "when builders began to improve on their methods . . . the day of the cosy corner was waning." In these days of draughty "garden-suburb" houses and eligible artistic villas of the same type, it has doubtless again become a necessity—not, perhaps, that it need monopolise half the small room, or "prove a sore trial to the ghost of formal Robert Adam" (p. 196), who, at any rate, left us some chimneypieces that do "fit in with his rooms and harmonise with all else there," as Mr. Rothley says on p. 135, even if he "did not oppress with the busyness of contour and colour" it. Kent.

It is proposed to reprint the old B.B.W. of chimneypieces in a town hall, and Mr. J. V. McCarthy, C.E. Tunbridge has been instructed to prepare plans in this connection.

* Chimneypieces and Ingle-Nooks. By GUY CROFT, ROTHLEY, London: T. Werner Laurie, Colford's Inn, 16.



NEW HIGH ALTAR AND REREDOS, CHRIST CHURCH CATHEDRAL, ST. LOUIS, U.S.A.
MR. K. TULLY, ST. LOUIS, ARCHITECT. MR. HARRY HOMS, EXETER, SCULPTOR.

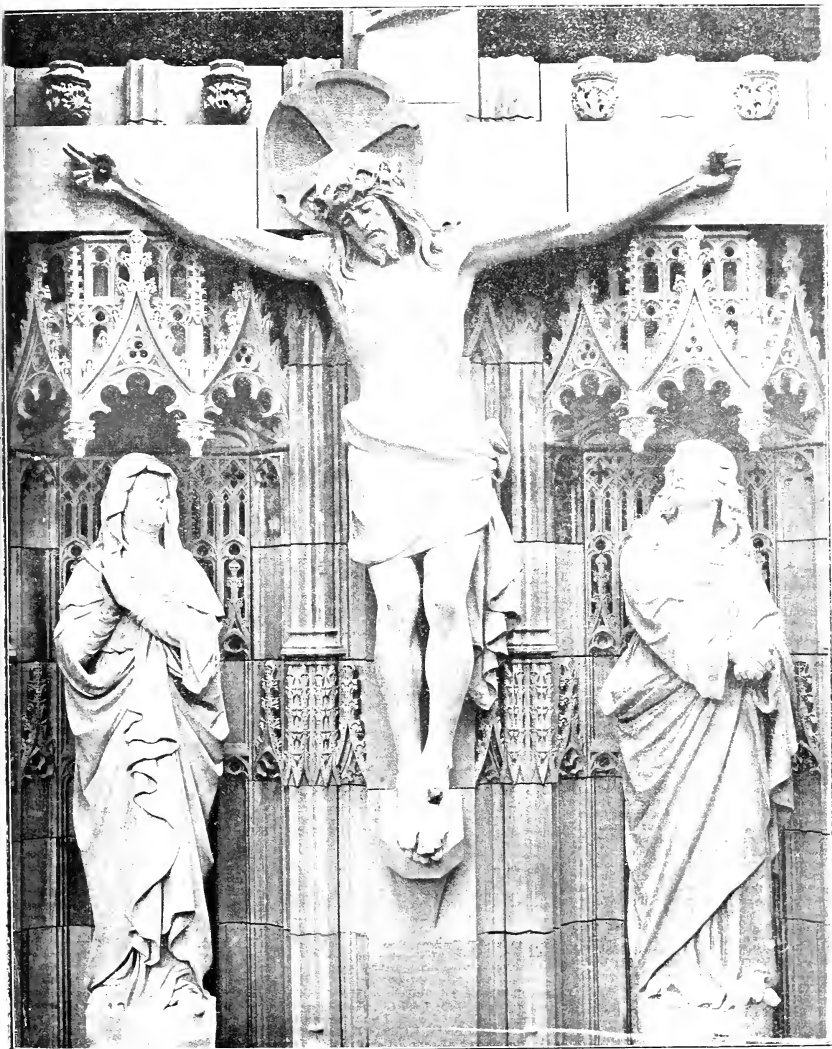
CHRIST CHURCH CATHEDRAL, ST. LOUIS, MO., U.S.A.

THE NEW HIGH ALTAR AND REREDOS of Christ Church Cathedral, St. Louis, Mo., U.S.A., are the work of Mr. K. Tully, St. Louis, Architect, and Mr. Harry Homs, Exeter, Sculptor. The altar and reredos were erected at the expense of the late Lord Althorpe, a decade or so ago, and the fine sculptural altar screen of much the same type at Winchester Cathedral, which was renovated a few years later, at the

expense of the Earl of Salisbury. The edifice itself is of Early Gothic type. The reredos that has now been placed in its choir is of 16th-century Perpendicular character, its motif being the high altar screen of St. Albans Cathedral, erected by Mr. Henry Beaufort, the first son of the late Sir Arthur Philipps, Bt., and at the expense of the late Lord Althorpe, a decade or so ago; and the fine sculptural altar screen of much the same type at Winchester Cathedral, which was renovated a few years later, at the

expense, and under the direction of its Dean and Chapter.

It was in the autumn of 1909 that, acting in the advice of Mr. Tully, their architect, the Dean and Chapter of Christ Church Cathedral, St. Louis, commissioned Mr. Harry Homs, the well-known ecclesiastical sculptor of Exeter, to carry out the proposed new reredos and altar, the task understanding being that he should complete and erect the whole so that all be ready for dedication by the end of the year that has just passed.



CENTRAL FIGURES, REREDOS, CHRIST CHURCH CATHEDRAL, ST. LOUIS, U.S.A.

Mr. K. TUTTLE, St. Louis, Architect. Mr. HARRY HEMS, Exeter, Sculptor.

away. This has been successfully accomplished, and the unveiling and dedication, by Dr. Tuttle, D.D., Bishop of the diocese and Senior Bishop of the United States, took place on Christmas Day morning before an immense congregation.

Like, to a large extent, its counterpart at Winchester, the reredos is constructed

entirely of Caen stone, the blocks used for the purpose having been personally selected at the quarries in Normandy by Mr. Hems. The whole of the work has been carried out in the studios of Messrs. Harry Hems and Sons at Exeter, and the finished stones, weighing untidily 160 tons, were conveyed a distance of upwards of five thousand miles,

so carefully packed that upon arrival at their destination it was found that none had sustained the slightest damage. Special permission was obtained at Washington for Mr. Hems to take over three of his most trusted fixers to place the whole in position, while the latter's personal supervision of the task took exactly four months to complete. As

work of the highest type of ecclesiastical art, a religiously calculated to improve the minds of the people generally, both erebros and after its admittance into the United States, in 1840.

The height of the cresting, 15 ft. 6 in. from the marble floor below. The subject, sculptured in high relief immediately over the altar, is a spiritual representation of the Nativity. The altar itself and its two retablos are all of Cane stone; but the slab, the mensa—is of highly polished Carrara marble, a fine slab 12 ft. 6 in. by 20 in. by 6 in. The tabernacles are of polished English alabaster. The sculptured panels in front of the altar represent respectively: the Meeting of Mary Magdalene with Our Lord in the Garden after the Resurrection, (north) the Annunciation, and (south) the dedication in the Temple. The doors in the doorways opening out into the history are of bronze. The whole cost of erebros and altar has been about £10,000.

AN EVENING IN THE INSTITUTION LIBRARY.

By JULIAN C. ROGERS, Honorary Member.

The staple of our library is British topography; professional textbooks also, as a matter of course. The earliest county history is Lambard's "Kent," of which we possess an excellent reprint dated 1856, that is, two years after its first publication. We have also a copy of Kilmurn's "Kent," published in 1657, three years after Lambard's work, to which it is inferior in every way. He was either a very credulous or a very mendacious person. Here is an amazing piece of natural history: "A monstrous fish shot himself ashore" (in Thanet), "where, from want of water, he died"—as fish sometimes do under such circumstances. "The roaring was heard above a mile." Its length was twenty-two yards, his nether jaw opening twelve feet. "One of his eyes was more than a cart with six horses could draw, his tongue was fifteen feet, and his liver two earldoms." That fish is one of my most cherished mental impressions; but let me hasten to add, lest I be misunderstood, that Baron Munchausen did not live until a century later, and natural history had to put up meanwhile with the services of inferior agents. I understand that the baron's name is still held in reverence in his native Havelberg. However, for his exertions in "extending the sphere of German influence" is the hinterland of Unversacity. Sir William Dugdale's masterpiece, "The History of Warwickshire," was published about two years after Lambard's "Kent," but there is no comparison between the two authors. Lambard was an ignorant amateur, Dugdale a professional antiquary and a literary craftsman of the first order. The latter, who was one of the model and which all subsequent county histories have been fashioned. We possess a copy of the original edition of this famous book. It is enriched with many plates by the celebrated engraver Doular, who also contributed many illustrations to the same author's magnum opus "The Monasticon," of which we possess a fine, though not so original, copy. There could not be a better model than this splendid work of the Greek axiom: "A big book is a great evil." Let me commend to your choice J. T. Smith's "Antiquities of Westminster," a most delightful book. It abounds especially in admirable illustrations, among them contrasted views of the so-called Painted Chamber of Westminster. You will find them on pages 18 and 30. The first of them represents the very earliest attempt at the art of topography; the second the improvements of the art in a later stage of its development. It also shows on No. 6 of the supplementary plates, an admirable ground plan of Old Whitehall Palace before the fire No. 39 on this plan was the residence of the scandalous, Mr. Chiffinch, or Chaffinch (familiar to readers of Scott's "Fortunes of Nigel"), the minister to the base prodigies of King Charles II. Another book which

should by no means be overlooked is Parton's "History of the Parish of St. Giles." Apart from its literary merit it is of interest from a plan showing, in detail, all the houses and the names of their occupants as early as the year A.D. 1300. I believe this to be the earliest plan of the kind in existence. The library has its humorous, conscious and unconscious. There is among the tracts a pamphlet on Leaschold Enfranchisement, the opening sentence of which is a masterpiece of verbal definition: "A leaschold is an overburdened frechold, stuffed with law." It is such a book as to be regretted that the rest of the treatise does not fulfil the promise of the hopeful beginning. I have often wondered what sort of man he who wrote a book which he entitled "Talks on Manures," which you will find in the library. The word "Talks" is so friendly, so suggestive of quiet colloquy by the fireside; but with manures for a subject the romance is gone. Indeed, I know of nothing to match it save a little book of erotic poems written by a footman and called "The author," debauched "The Muse in Livery"; a delightful blend of Plush and Parvassus; or, perhaps worse than all, a work published many years ago by a writer on cutaneous diseases with the appallingly suggestive title, "Hunt on the Skin." There is a book on the shelves with the highly deceptive title "Blount's Jocular Customs," a treatise of the most arid description on manorial law. I have been able to trace the origin of this particular use of the word "jocular." That it is utterly misleading I know for certain, for I have seen a student take it down with eager expectancy and hastily replace it with a book of deep disgust. I have already referred to Fuller's "Worthies of England"—a classic in the language. Its humour is undeniable; but it is marred by the verge of pedantry. It was written in the time of James I., when a book of verbal "concoits" which a book contained was the measure of its excellence. One of the strangest topographical works ever produced is the "Polyolbion" of Michael Drayton, described on the title page as "A chorographical description of the travels, rivers, mountains, forests, and other parts of Great Britain." It was published in 1612. Drayton is the "Tusser" of topography, except that his verse was of a higher order of poetical merit, in which the personification of inanimate objects bears a conspicuous part, after the fashion of the period. There is nothing like it in the language. A lyrical Bradshaw or Enclind in hexameters would seem very little more strange to modern eyes. The book is annotated by John Selden, and has for postscript "The epitaph of Prince Henry, Prince of Wales, who, had he lived, might have deprived us of the blessing of Charles II." It also includes some commendatory verses by that much neglected part of the Commonwealth, George Withers (beloved of Mr. Joseph Chamberlain), and some remarkable maps, well worth examination as grotesque specimens of cartography. It could seem to be the most curious and watercourses in those days had each its own female conservator, whose duty it was to look after things by sitting permanently in mid-stream. As an almost inevitable consequence, shoddy-dressed young men hovered about in a state of riparian rapture, intent on enticing them ashore. The various conservancy boards would add greatly to their popularity by reintroducing this charming art of the trap set for him by Chatterton, and solemnly printed the pseudo-poems of the imaginary monk Rowley with which his correspondent supplied him. Many years ago I marked these forgeries in our copy of the book, to which they have lent such a dubious fame. The curious can read them on pages 690 to 699 and elsewhere in the volume.

There should be a facsimile of one of the poems on page 637, but for some reason it is missing. Those who care for early chronicles should look at our copy of the magnificent volume of Reports of the Record Commission, published under the title "Monumenta Historica Britannica." Here you will find the oft-quoted "Chronicle of Bede" (circa 673-735), "venerable," if anyone ever deserved the title, and the "Anglo-Saxon Chronicle," printed in English and Anglo-Saxon in parallel columns—most interesting for those who care to achieve some knowledge of the rudiments of our native tongue, and useful for students of the much neglected poet Gower in his last, or English, period. The volume also contains a most instructive map of Roman Britain.

Agriculture, as I have said, is very fully represented on our shelves—at any rate historically—but is deficient on the modern side. Here you may trace its evolution from what I shall say, Virgil to Voelcher. Perhaps the most instructive "deop" for the student, at any rate—is the monumental "History of Agriculture and Prices," by my late relative, Professor Thorold Rogers, based on the records of Merton College, Oxford, the oldest landlords in the country, their ownership extending without a break from the 13th century to the present day. Next let me call attention to Fitzherbert's "The Boke of Husbandry," a deop of which, in black letter, dated 1534, is in the library. Thirty years after Fitzherbert came Thomas Tusser's rhymed jangle called "Five Hundred Points of Good Husbandry," which was, I presume, supposed to be got off by heart—a sort of memoria technica. Tusser had a passion for doggerel verse, even committing his autobiography to that detestable medium. Strange to say, it is included by the large charity of Southey among the "Early British Poets." Our copy is only a reprint dated 1812. Next comes Gervase Markham, of whom it is sufficient to say that his industry was greatly in excess of his knowledge, while his principles were detestable. He thought nothing of republishing his old books under new titles, until the booksellers combined against him, making him sign a bond not to write any more works on agriculture if he wished for further employment. This excellent plan is well worth reviving in our times to check the fecundity of some authors I could mention. Of Markham's thirty-two lucubrations we happily possess but eight; all, however, are gems of absurdity: a perusal of his "English Housewife's Household Physic" would cure the most confirmed hypochondriac. His "The seven remedies for human ills is what he calls "fasting spittle," which, whatever its therapeutic value, has the advantage of being cheap, and under modern fiscal conditions likely to be abundant. Not to labour the list, Walter Blith's "English Improver Improved" is worthy of a passing glance, as well as Hartlib's "Legacy of Husbandry," published, like Blith's book, at the time of the great dearth of 1695. This worthy owner of his fame, such as it is, to the fact that he was Milton's friend. It was nearly a century later that Jethro Tull published his epochal treatise on "Horse-hoeing Husbandry," which marks the first real advance in British farming for some centuries. Tull, as everyone knows, was the inventor of the drill. There is an excellent copy of his work in our library, and sufficiently richly mentioned by his contemporary, Maxwell, of whose "Practical Husbandry" we possess an original copy, and we come to that prince of observers, Arthur Young. I believe that we own a complete set of Young's writings. They can still be read with profit, though he belonged to that curious class of men competent to advise others in a business in which they are themselves dismal failures. It was a natural and pre-eminently a person, but as an analyst of agriculture he remains quite unrivalled. There is no more interesting book in our library than his "Tour in France," written on the very eve of the French Revolution. His "Tour in Ireland" has been recently republished, and I had the happiness to discover that we possess Young's

* Read at the ordinary general meeting of the Society's Institution, Monday, Jan. 22, 1912.

own copy of this work, copiously interleaved with original sketches, which were supposed to have disappeared. Such was Young's enthusiasm that he recorded on his wife's obituary that "she was the great-granddaughter of the first person who used marble in a tomb, a queer idea to mortality. It reminds one of the ardent naturalist who was buried on his mother's grave. I do not think it is generally known that King George III., the dullest of his race, contributed to Young's 'Annals of Agriculture' under the pseudonym of Ralph Robinson, who was his Windsor shepherd. It was agriculture that he understood, so far as he was concerned, and the thing of the writings of William Cobbett and Young's success as an animalist, we possess nothing but his immortal 'Rural Rides,' which is almost a classic in the language. There is an indefinable charm about the book. It seems to exhale the very air of the breezy downs and sequestered lanes he loved so well. No man is harder to please in the hierarchy of agricultural writers; but as a master of pellucid English he has few equals. His book is also an excellent school of vituperation for anyone that does not graduate in that gentle art; but his provocations were great, and he lived and wrote in that most miserable period in all agricultural history—the first quarter of the 19th century. Probably few of the Members have had the curiosity to take down a book with the formidable title 'A Law Dictionary,' by Dr. John Cowe (the spiteful 'Coke' always referred to him). Dr. Cowe's work is a perfect mine of information on feudal customs and manorial law. It illustrates better than any other book with which I am acquainted the monstrous edifice of legal chicanery which came in time to overlay the common law of the land. Persons delicately referred to by Carlyle as 'improper females' had had time of it in the Middle Ages, as you will see if you refer to the word 'Free-bench.' The book has a curious history. It was condemned to be burned by the common hangman for certain definitions of the words 'King,' 'Parliament,' 'Prerogative,' etc. Cowe, to commend himself to the good graces of James, contending that the monarch was absolute, only consulted Parliament 'of his goodness' to have his power to make laws without its consent, a doctrine pleasing enough to the King, but quite intolerable to the House of Commons.

The very mention of dictionaries calls up the gigantic figure of Samuel Johnson—the literary Titan of the 18th century, on whose merits the opinions of his fellow countrymen were so curiously divided—to some a synonym for all that is harsh and disgusting, to others all that is great in conduct and morals. It has been said that his name is a touchstone of ethical perception, and I am not concerned to deny it. What is certain is that no man before or since ever engaged, single-handed, in so gigantic a task as his dictionary or carried it through so successfully. The preface is a miracle of erudition and should be read by anyone who values the genius of our English tongue. I am happy to say that we possess a copy of the original edition, and there is surely some pathos in the fact that here we can gaze upon the actual printed characters on which the great doctor's poor myopic eyes rested as he stooped over the proof-sheets in his dismal garret in Gough-square, the front of his old 'low wig sizzling like the candle-flame. He employed five amanuenses, all Scotsmen, two named Maclean, the others Macland, Shiel, and Stewart, whose names thus live in history. The work occupied him seven years, and he received for it a sum per annum which falls short of many a fee now paid to counsel for a couple of days' work in obscuring the face in a single compensation case. Johnson, a writer to a philologist, and was quite unacquainted with German, and his definitions are not always unimpeachable. His selection of authorities was probably the best available at the time, and it is said that he was assisted in his choice by Pope. His definition of 'oats' is well known—better than that of 'exceise' as 'a hateful impost levied on commodities and adjudged, not by the common judges of

property, but by wretches hired by them to whom excise is paid'; or of 'lexicographer' as 'a writer of dictionaries, a harmless drudge that busies himself in tracing the original and detaching the significance of words'; both highly characteristic specimens of his style. We also possess also the possessor of a good copy of Poy's historical and critical dictionary, a miracle of learning and research.

Let me commend to your notice the deeply interesting collection known as the 'Somers Tracts.' Most of them are what remained of Lord Somers's library after a disastrous fire in 1752. How many of these papers (some of highly confidential nature) are in the hands does not appear; but it is obvious that in his position as Lord Chancellor he would have access to many State documents which, with his keen love of literary pursuits, he probably copied, and perhaps in some cases appropriated. There are in this vast collection of tracts documents of extraordinary interest for the student of history. That this is so is shown by the fact that it is edited by no less a person than Sir Walter Scott. Our copy belongs to the second edition, published in 1809, the year of the appearance of 'Marmion,' and five years before the first of the Waverley novels. As a specimen of these tracts, let me suggest the perusal of Sir Roger Williams's 'Account of the Wars in the Low Countries,' where centuries earlier the British Army, according to Froissart, 'sawered so terribly.' On page 23 of the first volume you will find a report of the speeches of Henry VIII., Queen Catherine, and Cardinal Campeius in the divorce proceedings before that wily person and Wolsey. But I must not linger over these inviting volumes.

Almost equal in interest is the so-called 'Harleian Miscellany,' another enormous collection, selected by Oliver, the antiquary, from the library of Edward Harley, second Earl of Oxford. It comprises nearly 700 rare tracts. A glance at the index will show the varied nature of the contents. Among them I may mention the speech of Queen Elizabeth I. to her last Parliament. No more regal utterance is to be found in the language, or one showing a more just appreciation of the duties and responsibilities of an exalted monarch, than you can read here an account of the well-known secretary, Ludowick Muggleton, and how he 'slid out of one religion into another.' We have but two recognisable books from Beckford's celebrated library at Fonthill. One of them is the 'History of Framingham,' the other a small guide to the city of Hereford. Both derive interest from the fact that they are annotated on their fly-leaves in Coke's own hand, showing that he was not a mere collector, but a diligent student of the books he acquired. Among the many curiosities in the library is a little duodecimo volume entitled 'The Compleat Lawyer' by William Noy. The feat of compressing the whole body of law within 117 small pages strikes one as surprising. It is perhaps explained by the fact that the author was more skilled than most men in writing small results in small measure, for it was he who, as Attorney General to Charles I., framed, and it is said suggested, the ordinance for the levying of ship money, which cost the King his head and the kingdom a sanguinary internecine war of nine years' duration. We have an excellent copy of the seventh edition of 'Coke upon Littleton,' printed partly in black letter, dated 1670. It is, perhaps, next to Justinian's 'Institutes,' the best-known law book in any language. It contains a quaint portrait of Sir Thomas Littleton himself (temp. Ed. IV.). We have also a fine black letter copy, printed in 1583, of Littleton's original work, 'The Tenures,' on which Coke has imposed himself so enduringly. Among our most valuable possessions is Bracton's great work, 'The Laws and Customs of the Kingdom of England,' remarkable not only for its vast learning, but as an early and splendid specimen of the printer's art. This great treatise was published in 1569. It is described by Sir William Jones as 'the best of judicial classics.' Ours is an original copy, and, though nearly 350 years old, might have issued yesterday from the press of Richard

Bellott. I may mention that Bellott, at the south end of Fleet street, a few yards inside Temple Bar. He is a descendant of the Bellotts, the printer of the works of the Earl of Surrey, expensively represented in one of the volumes of 'Armer Jones,' which I commend to all lovers of the book. Our library is a very rich one, and contains some notable books on the subject. One of the best I say it without a quiver, because drawn from unimpeachable sources, is Professor Thorold Rogers's 'Six Centuries of Work and Wages,' which vividly depicts the condition of the common people in the thirteenth century to the present day. Other works of the kind, though much inferior in point of accuracy, are Eyles's 'State of the Poor,' published in 1877, and the 'Progress of the Nation,' neither of which the student of social economics can afford to neglect. It is a satire on our boasted place in the universe that this man, who deals with such portentous problems, died in the sting of a guat.

We are also not very rich in books on architecture, perhaps rightly so, but I should like to direct your attention to two of them—Wren's 'Parentalia,' and Pugin's 'Contrasts.' The former is a history of the family of Sir Christopher Wren, written by his son, the second Sir Christopher. Wren was not only a great architect—perhaps the greatest since Bramante—but a great scientist, for he was Savilian Professor of Astronomy in the University of Oxford, and a President of the Royal Society. On page 274 is a most interesting account of a survey of St. Paul's Cathedral, made by Wren a few months before the Great Fire in 1666. This should be read in connection with a report by him after the fire, which will be found on page 247 in Elmes' admirable biography of Wren, also in the library. A. Welby Pugin's 'Contrasts' strikes one at first as an ill-natured pictorial skit on contemporary architecture. It is not really so, being only an appeal to the eye, against the degradation of his beloved art. His plan is to place side by side modern and ancient examples of buildings for similar purposes, very much to the disadvantage of the former, as you have heard said by those who knew him that this great artist never used a T-square, and rarely supplied the builder with a working drawing, the poor man having to content himself with rough sketches in charcoal, on the nearest plane surface available.

Let me call your attention to a little 'History of Newcastle-upon-Tyne' for the sake of its frontispiece, an undeniable product of the burin of Thomas Bewick, recognisable at once, by the instructed eye, by the masses of uncut wood left to form the deeper shadows. Those who have a fancy for ancient itineraries should look at William Burton's 'Commentary on the Itinerary first published in 1658) of the Roman Emperor Antoninus Caracalla (186-217); at Antoninus Pius, as is generally supposed. It contains the whole story of the Roman Government of Britain in the third century. It is a book much beloved of antiquaries, by the learned Selden most of all, coming later down in the series the various itineraries through Wales, in 1188, of Baldwin, Archbishop of Canterbury (1184-1196). It appears in the Library Catalogue under the name of De Parri, who accompanied Baldwin on his travels. Later still, the travels in England and elsewhere of Cosmo III., Grand Duke of Tuscany, who visited this country in the reign of Charles II. The principal interest of the book consists in a large number of views of English towns and castles in the seventeenth century, and the records it contains of many quaint habits and customs of the time by a contemporary observer. The view of the Banqueting House, Kingsgate, and the adjoining houses is particularly interesting. We have a copy of the third edition of the admirable itinerary (1534-1542) of the learned John Leland, that prince of antiquaries. The book was written to form a New Year's gift to King Henry VIII. It is doubtful whether Henry's maternal preoccupations left him much leisure

CURRENTE CALAMO.

The Society of Architects has issued the following notice: "The proposals for the fusion of the Society with the Royal Institute, particulars of which were recently sent to every member of the Society, were considered at a special general meeting of the Royal Institute on January 8, when a resolution to approve of the agreement between the two Councils was met by an amendment to refer the whole matter back to the Council of the Royal Institute, which amendment was carried by a large majority. The Council of the Society now await a communication from the Council of the Royal Institute regarding the situation which has arisen. This may mean a reopening of the negotiations between the representatives of the two bodies. The representations on the matter which have been received from some of the members of the Society have been noted for consideration by the Council of the Society, who, as soon as they are in a position to do so, will make a further statement. Members are asked meanwhile to keep an open mind on the subject. A very proper request, which we hope all concerned will bear in mind.

We should have been glad to have given a fuller report of Mr. Maule's excellent paper, read on Wednesday night before the Manchester Society of Architects, on "Architectural Education." With his views set forth in the abstract we give, we need hardly say, we almost entirely agree. It is useless to try to "educate" specialists—not in architecture merely, but in any other art or science—till you have established a broad basis of solid general knowledge in the mind of the student; and it follows that, as specialisation is increasing, the longer it will take the average student to finish his apprenticeship. We do not know how this view commended itself to Manchester men, or whether Mr. Maule's paper was adequately discussed. The Manchester Society—this session, anyhow—has been fortunate in its lecturers and subjects, which have been distinctly above the general average. That given by Sir Charles Nicholson on the 17th inst., of which we also give an abstract, must have been especially interesting.

One awaits with some curiosity to learn the details of the scheme for a "House of Retreat" for architects, which M. Lucien Leblanc, a Parisian architect, is about to exhibit to the French Central Society of architects. Whether it is almshouse, hospital, home of rest, or something else, does not yet appear. Possibly the idea is simply to arrange opportunities for spiritual refreshment and calm meditation of the kind of which our friends the clergy avail themselves with such advantage in the intervals of their lifelong battle with the world, the flesh, and the devil. Here, perhaps, we might follow suit with benefit, and retiring for a week-end now and then to the ecstatic contemplation of the purely æsthetic attractions of our vocation, learn amidst the disturbances of current architectural politics to "play the game," as Mr. Perks admirably phrases it elsewhere in our columns to-day; and, if we might add the words, as gentlemen.

The intimation by the District Surveyors' Association this week, in our Correspondence columns, of its issue, under

the London County Council General Powers Act, 1900, of a basis of uniform valuations for skeleton framework buildings, is a timely and welcome one. It will reduce the labour of all concerned in making and checking the calculations, and the convenience of being able to obtain the requisite forms, as indicated, will be appreciated. The scheme is issued in co-operation with the Royal Institute of British Architects, and fully embodies all the requisites of the Act above referred to.

The "Battle of Edwardes square" has ended before the House of Lords in a complete and well-deserved victory for the residents, whom all will congratulate on having secured the use of their three-acre garden for ever. We are very glad the talk of compromise never came to anything, and that the residents' committee had the pluck to fight to the finish. The ordinary householder is so used here in England to submission to the invader, that it is well he should learn that, impotent as he may be single-handed before the aggression of ground landlords and powerful syndicates, there is still the law to appeal to, if he can get mutual help to pay for it, and can last out the advantage it offers to the wealthy opponent who can exhaust its delays and face its uncertainties. It may very well be, of course, that the building company that sought to cover Edwardes square thought it had acquired the right to do so. We do not know; but we are very glad it has been defeated, and the more so because of the fashion in which it began operations.

Had might triumphed, we fear we should soon have heard of similar attempts to wrest the amenities of more of our pleasant squares from those who legitimately enough enjoy them, and the general public who benefit by their beauty. For once the speculator has been taught that, no matter how good a bargain he may think he has made, Acts of Parliament made to protect those over whose rights he attempts to ride roughshod are not quite waste-paper yet. We trust some memorial will be instituted to record the victory, and that it may hereafter inspire many another bold resistance to lawless proceedings of the sort with which the "Battle of Edwardes square" began. For the residents therein—many of them held their houses on short leases—have really fought quite as valiantly and as well for all of us as for their own hands.

The Wellington monument in St. Paul's is at last completed, after forty-five years' blundering and delay, almost entirely due to Mr. Ayrton, who tried to cut down Stevens's remuneration by £6,000, and harassed him with impossible conditions. It was not till some years after Stevens's death, in 1875, that the monument was set up—hidden away in a side chapel. At last, thanks mainly to the remonstrances of Lord Leighton, it was removed to its present position, and now the equestrian statue, copied after the model in the Tate Gallery, has been completed by Mr. Tweed. The result, as a whole, is satisfactory, and the apprehensions of some who feared that it might have been otherwise will be dispelled. At any rate, the memorial is complete in form as its author conceived it, and will, we trust, endure as long as the cathedral, perpetuating the fame of the great

sculptor in whose memory it was erected. For such monuments are made to last, and the presentiment of their ultimate effect is the only one that should be in the mind of the artist.

The dedication of the Book of Wesley at Westminster Abbey, recently performed, sees the war of iconoclasm in the House of Armageddon, one of the most famous of the episodes of the great struggle which characterises the memories of the Englishmen of old times, and the notable fact that Milton alone suggested to the poet that Milton alone suggested to the poet that the English masses as the Book of the Tinker. Mr. Comper has woven the scenes in the immortal romance which for more than two centuries have attracted the imagination of the young of all sects, and redeemed Puritanism from the narrowness of the more serious. In very truth the story of John Bunyan was outside of, and beyond all, the sects, and none who have attempted to make his parable the vehicle of their own particular dogmas have succeeded any better than the High Church parson, who, as Maugham reminds us, published an edition explaining the Wicket Gate as Baptism. And amid all the signs of the times there is none more convincing than that, however indifferent to the letter of the tenets of the Tinker the world is growing, the ideals of the great fight against evil still appeal to those as earnestly as ever the Pilgrim was by Apollonius, and inspire the helpful to raise up House Beautiful along the perilous road, and minister therein to the weary and discouraged, with true piety, prudence, and charity.

One could almost have wished that the organisers of the "Puritan Pageant," which is to open on Feb. 12 at the Royal Horticultural Hall, had contented themselves with the "Pilgrim's Progress" for their repertoire. Many of the subjects selected are, no doubt, worth remembrance, but such episodes as "John Perry and the Pilgrim Press," the "Ejection of the Rev. Jeremiah Lewis," or "John Wesley and Bean Nash," will awaken sympathy to a far less extent than if "The Arrest of John Bunyan" had been accompanied by a short series embodying the more stirring episodes of Bunyan's book. Still, the fact that a "Puritan Pageant" is possible to-day is, perhaps, the best evidence of the growing influence of the broad human sympathy which must have animated Bunyan himself. Those of us at all intimate with the inner life of Nonconformity fifty years ago will, we fancy, be of opinion that "Pageants" in those days would have been regarded with still more distrust and dislike than, even some of Bunyan's weaker brethren of his own day manifested in regard to his tales of beautiful damsels succouring errant knights, and reminiscences of the mere carnal strife of the author's own old soldier days.

The take over of the telephones by the Post Office is hardly signalled as yet by any great access of celebrity at the exchanges, and the alterations in the Directory confuse us more. Why some of us are left out altogether we do not know. One contemporary, we notice, is among the deleted, and has to advertise its number daily. Another, the *Manchester Guardian*, declares that a commercial man, rash enough to make a telephone trunk call when exceedingly short of time, found, when

he spoke, the crowd had been put on to the wrong train, and this was the more exasperating at home, as it was the number he wanted was the simplest possible No. 1. To shortness of time thereupon he added shortness of temper, and somewhat angrily complained to the operator of her mistake. "What I want," he finished by declaring, with savage emphasis, "is one on the trunk"; and the operator, who evidently knew some slang, probably she had brothers—retorted, quietly, "Yes, you do."

ETHICS AND IDEALS OF SCULPTURE.

Professor W. R. Colton, A.R.A., who is about to retire from the position of Lecturer in Sculpture at the Royal Academy, is delivering a final course of four lectures on "Ideals and Ethics in Sculpture." In the first of these closing addresses, given on Monday afternoon, Professor Colton expressed his regret at the present tendency of ornament to run riot in our public buildings—a tendency which he traced back to Sir Christopher Wren, and proceeded to annalsvert upon Post-Impressionist sculpture fashionable in certain quarters just now. He then passed on to consider the public monuments of London. Generally speaking, England was a country of great intentions, which were rarely carried out. Our bridges were left without ornamentation, and the art of sculpture was neglected by the public authorities. The public, too, were to blame for showing so little respect towards the works of art in our parks and thoroughfares. People said that our climate was unsuitable for statuary; but the Albert Memorial showed that where reasonable care was taken of it, this was not the case. Undoubtedly the memorial was poor as regards elevation, while the variety of a variety of material made it even gaudy; but in his judgment the sculptural work of Mr. Armstrong was exceedingly fine. Foreign capitals were greatly superior to our own from the artistic point of view, and in this direction he instanced the fine decorative approach to the Pont Alexandre III. in Paris. It was to be hoped that when the new St. Paul's Bridge came to be constructed, the authorities would rise to the occasion. Our fault was that as a nation we were too utilitarian. It was amusing, as throwing light on the popular attitude in this country towards art, to note the suggestions which were made to perpetuate the memory of King Edward. One proposal was that Nelson should be taken down from the column in Trafalgar-square, and that a statue of the late King should be put in his place; another was that the front of Buckingham Palace should be repaired; another that consumption hospitals should be erected; while, of course, our old friend the Crystal Palace showed great vitality on that occasion. The English grumbled money for objects that they regarded as the decorative sense alone. They failed to realise that miserable surroundings made miserable human beings. The new decorative objects we had in our thoroughfares were neglected and allowed to become coated with soot and sulphuric acid. As a nation we had become drab grey, and all through the continual entry in favour of utility.

SHEFFIELD TOWN PLANNING SCHEMES.

AN ADVERTISED MEETING.

At the town hall, Sheffield, on Friday, Mr. Thomas Adams conducted a Local Government Board inquiry into the corporation's application for authority to prepare town planning schemes for the three areas within the city's boundaries. These areas are at Greystones and Pinnerley, 189 acres; Sandy gate 104 acres; Larn Park, Wincobank, and Shiregreen 257 acres.

During the inquiry Mr. E. M. Gibbs, F.R.I.B.A., who is a member of the advisory committee associated with the town planning sub-committee of the Sheffield Corporation, made a protest. When the Greystones and

Pinnerley scheme was being discussed Mr. Gibbs asked that a certain piece of land at present outside the area of the town planning scheme should be included for the purpose of providing a much-needed ring road. The town clerk said Mr. Gibbs's suggestion had been carefully considered, but it had not been adopted because the Local Government Board had already objected on the ground that too many buildings were included in the areas submitted. Mr. Gibbs's suggestion would mean the demolition of a number of new buildings at an enormous cost. Mr. Gibbs retorted that he was supposed to be a member of the advisory committee, but, he added, "I am never called to the meetings and am not allowed to attend." The town clerk strongly objected to this remark, saying they appreciated the help which Mr. Gibbs had given to the corporation. "But," he said, "Mr. Gibbs, although not a member of the city council, aims at being a constant member of the town planning committee, and exercising the functions of that committee without being a member of the council, and that cannot be done—The Inspector: This has really nothing whatever to do with the inquiry.—Mr. Gibbs: I think it has. If they won't listen to it I think the Government should. He added that on the one occasion during two years when he was called to a meeting of the town planning committee, and his colleagues on the advisory committee were placed with their backs to the plans, and no report had been submitted to them. The Town Clerk: We have not asked for your formal proposal. I know that.—Mr. Gibbs: Not you made a cat's-paw of me. The Inspector said the matter must be settled between Mr. Gibbs and the Committee."

PROFESSIONAL AND TRADE SOCIETIES.

GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—A lecture was given by Mr. James McKissack on "Rothenburg," on the Tauber, and other Bavarian towns, and a great number of excellent slides were shown proving its claim to be called a "City of Dreams and Fairy Hills." The lecturer also gave a short description of other interesting towns, including Harburg, Dinkelsb., etc.

ROMAN CONCRETE VAULTS AND DOMES.—At a meeting of the Midland Institute of the Institute of Sanitary Engineers, at Exchange Hotel, Birmingham, on Tuesday night, Mr. G. Salway Nicol, A.R.I.B.A., read a paper describing the methods adopted in constructing the great concrete vaults and domes, the remains of which are to this day conspicuous in and around the Roman Forum. These wonderful constructions, he said, were particularly interesting at the present time, as architects and engineers were now largely using concrete in place of iron and steel. Concrete was the most durable of all building materials, and in Roman times it was used in conjunction with brick ribs, and in the present day its use was reviving, reinforced with thin steel bars. In Birmingham were many examples of this method of building, such as the new buildings now in course of erection in New street, and in much of the work at the new railway station in Moor street. The water supply and drainage system of Rome was that on which methods of today were founded. The ancient city, however, enjoyed a much more plentiful water supply, and the Roman baths and public buildings in connection with them for the development of physical and intellectual life had nothing approaching them in any modern city. The design, construction, and equipment of these remarkable buildings had much to teach those now working for the improvement of many branches of civic life.

St. Chrys's Wakefield has presented a portrait by Sir Godfrey Kneller of Archbishop Tillotson to St. Paul's Cathedral. It will be hung in the library. Tillotson was at one time Archbishop of Canterbury from 1659 because Dean of St. Paul's till his appointment to the Archbishopric of Canterbury in 1691.

COMPETITIONS.

COSELEY.—At a meeting of Coseley Education Committee, on Tuesday night, the Sites and Building Committee reported that they had received a report from Mr. Arnold Mitchell, architect, London, who was appointed assessor in the competition for plans for the proposed Parkfield Council School. Mr. Mitchell notified that he had no hesitation in placing design "No. 36" first in the competition, and giving the second place to "No. 32." The secretary (Mr. F. Poole) stated that the design placed first was that of Messrs. Ewen Haver Brothers, of Birmingham, and that "No. 32" was by Messrs. Cleland and Hayward, of Wolverhampton. The Committee decided to appoint the first-named firm architects of the new school, and to pay the second prize of twelve guineas to the firm placed second. The secretary was instructed to advertise for tenders for the work.

EDINBURGH: THE SCOTTISH NATIONAL MEMORIAL TO KING EDWARD VII. The following six selected architects have accepted the invitation of the executive committee to send in designs for the Scottish Memorial to the late King Edward VII.: Edinburgh: Mr. Hippolyte J. Blanc, R.S.A.; Mr. G. Washington Browne, R.S.A.; and Sir Robert Lorimer, A.R.S.A., Glasgow: Mr. J. J. Burnet, A.R.S.A., and Mr. H. E. Clifford, F.R.I.B.A., Inverness: Mr. R. J. Macbeth. The memorial is to be associated with Holyrood Palace and its surroundings.

HALIFAX.—Professor Stanley D. Ashbed, A.R.I.B.A., of the Department of Civic Design at the Liverpool University, has made the following awards as assessor in connection with the competitive designs invited from local architects by the Halifax Corporation for town planning designs: First prize, 100 guineas, Messrs. Longbottom and Culpan; second, of thirty guineas, Messrs. Medley Hall and Son; and third, of twenty guineas, Messrs. C. F. L. Horsfall and Son.

ROCHDALE INFIRMARY EXTENSION PLANS.—Eleven sets of plans and designs for the proposed extension of the Rochdale Infirmary were recently sent in by nine firms of architects. Without opening them the Building Committee of the Institution forwarded the plans to Mr. Alexander Graham, F.S.A., F.R.I.B.A., of London, his award in the competition. At a meeting of the committee on Friday night Mr. Graham's awards were made known as follows: First, Mr. Hugh Henley, of the firm of Jesse Horsfall and Healey, 25, Drake-street. Second: Messrs. Sykes and Evans, of Rochdale and Manchester. Third: Messrs. S. Butterworth and Duncan, South Parade. The premium attached to the first award is 50 guineas, to the second 30 guineas, and to the third 20 guineas. Arrangements are to be made shortly to exhibit the plans to the public.

WINNIPEG.—In the international competition for long-slative Buildings for the Province of Manitoba, to be built at Winnipeg, it is satisfactory to be able to state that the protests raised against the shortness of the time allowed for the preparation of designs have been successful, and the date for the reception of plans has, according to a cablegram received by the Secretary of the Royal Institute of British Architects from the Manitoba Minister of Public Works, been extended to March 31.

Sanction has been received from the Local Government Board by the Houn Rural District Council to borrow £19,940 for sewerage and sewage-disposal works for the parishes of Herne and Recliver.

The memorial-stone of a new municipal school erected by the Manchester Education Committee in Abchurch-street, Quay-street, was laid on Friday. It will be the fifty-first school erected by the Manchester Education Committee and intended to replace three old schools which had ceased to meet the requirements of the Board of Education. It will provide accommodation for 760 children.

Our Illustrations.

CHOIR, VIEWED FROM THE TRASCORO, LEON CATHEDRAL, SPAIN.

We have already mentioned this picture when we reviewed Mr. Henry C. Brewer's exhibition of water-colours, shown by the Fine Art Society in their Bond-street galleries last November. The Cathedral is a very delicate and pure example of 13th-Century Gothic, so lightly built that nearly all the wall space is pierced and fitted with glorious old stained-glass in its beautiful windows. Its situation is so eminent that it can be seen above the well-wooded valley some hours before reaching the city, backed as it is by a range of mountain peaks lying away towards the north. Don Manrique, who held the Bishopric of Leon from 1181 to 1205, founded the present Cathedral; but he probably erected very little of the building, and nothing of the existing church seems to be so early as 1205, fifty years later being the earliest assignable date, judging from the fabric itself. The work from beginning to end is very French in plan, general design, and in detail. During the "sixties" the southern transept was pulled down to save it from falling, and the disaster was completed when Senor Lavinia, an architect from Madrid, put up his incongruous new work in its place. Old Spanish architecture has had, in modern days, but few students, and the prentice hands of native architects consequently are tried upon important projects of this sort, minor reparations being so few and far between. Amiens and Rheims are possibly the most like in style to Leon. The former dates from 1220-1260, the latter from 1211-1241. The chapels in the apse are polygonal, and not circular in outline, and the groining and arches in detail all correspond, the ribs being nearly the same, so that the remarkable resemblances between the Spanish work at Leon and Amiens and Rheims, and at St. Denis also suggest a common origin, and so are worthy of note. The parallel, too, between Beauvais and Leon in their architects' endeavour to secure lightness of construction and height, tells in favour of the assumption that the design of Leon was due to a French design rather than to Spanish, particularly as there were no other churches in Spain at that time which could have inspired a native architect to try his skill in this way with so sudden a development as this design illustrates. Scarcely a yard of plain surface remains unenriched anywhere: all the walling is pierced, and space is obtained by unusually large windows for the glorious glass which fills them. In England over-fenestration is a mistake; in Spain such excess of windows is inopportune. Undoubtedly this church ranks among the noblest in Europe. Its detail is rich and beautiful throughout, the windows having particularly good traceries. The east end shown in Mr. Brewer's drawing is more striking than the west. It retains almost all its old features intact, save that externally the roof is now very flat and is covered with pantiles instead of having the old high-pitched roof. The church stands well up above the boulevard which skirts the east end. The total length of the interior is 300ft. The width of the nave and aisles is 83ft. The height to the springing of the main arches is 25ft. 6in. The height to the triforium level is 46ft. and to the centre of the groining about 100ft. As compared with some French churches doubtless these dimensions are unimportant, but are still very noble, and for height, which is not the main characteristic of English buildings of this kind, they leave us far behind. In this case the height of the clerestory outside seems excessive, unduly towering up from all points of view. The lantern-like character of the interior is very remarkable for its harmonious design and completeness of idea which, no doubt, was venturous almost precedent at the date of its inception. Built with such daring, and of stone facings filled with rubble, without good bonding masonry, there remains little

wonder that the southern transept became dangerous and had to be taken down.

A BYZANTINE CAPITAL. DRAWN BY PROFESSOR LETHBRAY.

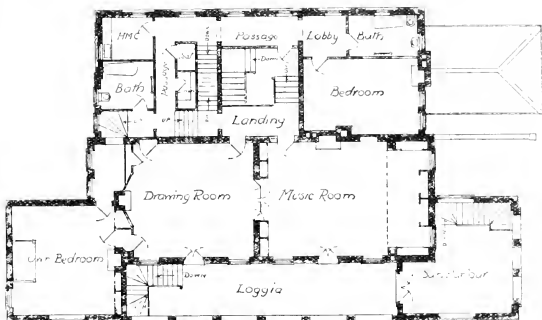
This drawing was made as a restoration of a fine capital of the 6th century in the Gizeh Museum, Cairo, from a photograph published in the Catalogue of Christian Antiquities in that museum. The capital is a good deal impaired, and its beauty is, therefore, not at first apparent in its full degree. There would have been a heavy abacus, or bearing-block, above the sculptured capital.

W. R. LETHBRAY. HOUSE AT ENGLEFIELD GREEN, SURREY.

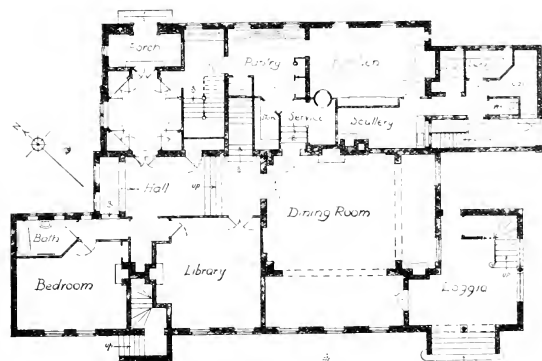
"Comely Bank," Englefield Green, Surrey, is being built on a pleasant site facing south

NATIONAL SILVER MEDAL DESIGN FOR A LOGGIA AND THEATRE OF STREET ARCHITECTURE.

Mr. Albert Douglas Hill, of Northampton, has a National Silver Medal for these designs, which illustrate an application of Renaissance detail to contemporary uses; and although they were made some time since, these façades are typical of the class of work still in favour with architects of this school. Colonnades invariably look well and greatly help the good appearance of almost any elevation; but, apart from the difficulty of police regulation of pedestrians, the adoption of this feature in front of shops hampers their lighting and obstructs their publicity. Architecturally considered, nothing could be better than a colonnade. The arcade provided for



First Floor Plan



Ground Plan

west. The owner is Miss Sophie Weiss. The plan is the outcome of very especial requirements, principal among these being the upstairs sitting rooms and loggia, with bedroom en suite, and the particular aspect of most of the rooms. The walls are built of brickwork cemented and coloured cream, with a pantile roof and crown glass in the more prominent windows. The name "Comely Bank" is derived from what used to be a very charming row of houses in Edinburgh. The builders are Messrs. Norris and Co. of Sunningdale. Mr. H. S. Goodhart Rendel is the architect.

ST. LUKE'S CHURCH, GRIMSBY.

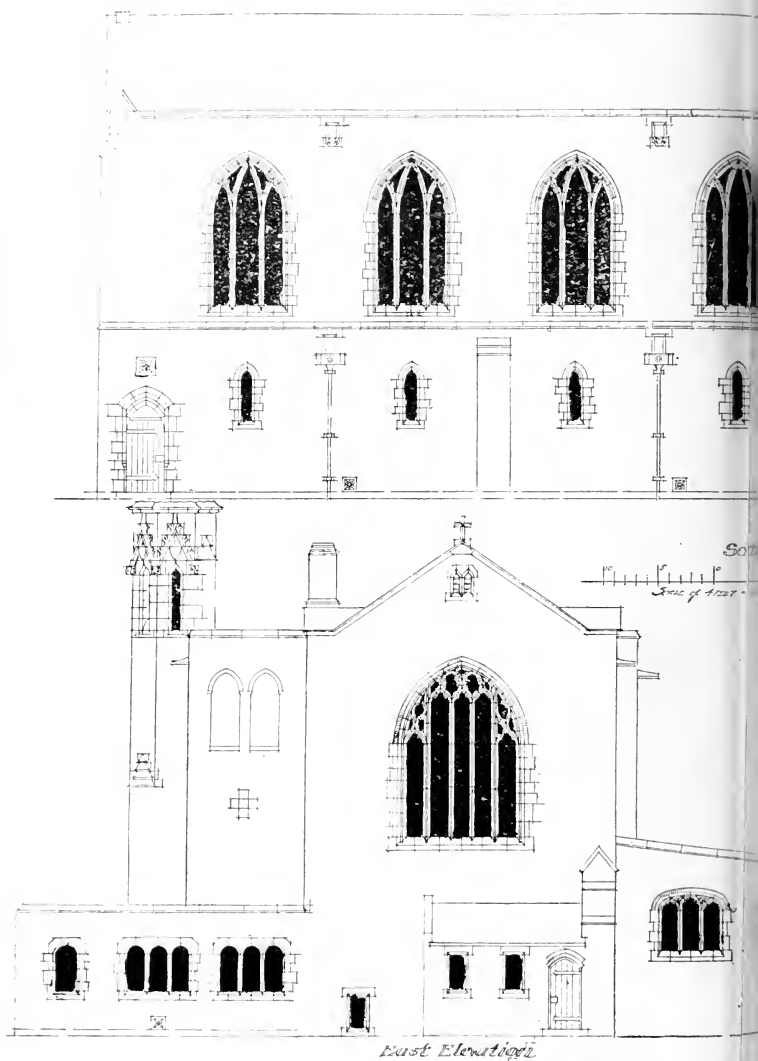
(For description and further sketches see page 143.)

by Mr. Hill's scheme, in the centre of his block, follows out the same principle of colonnaded building, the termination of the arcade with a semi-circular bay projecting as a colonnaded pavilion to break the frontage line, by way of emphasis, and furnishes a picturesque relief to a rectilinear elevation.

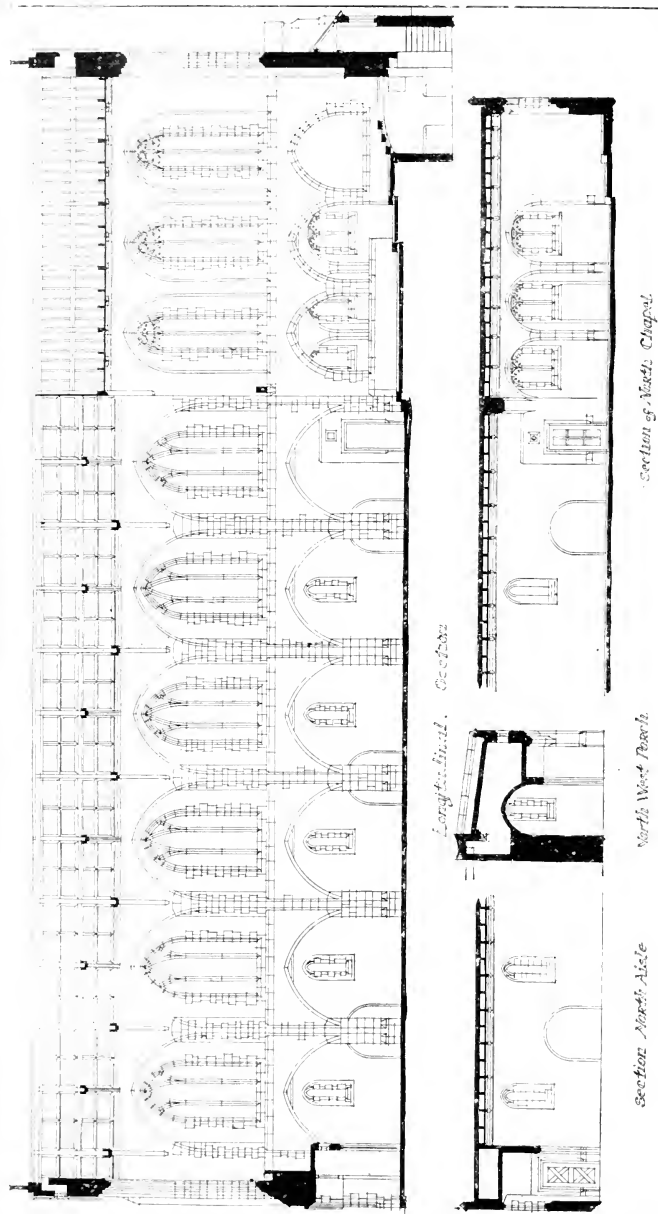
A new science laboratory is to be provided for Cranleigh School, Surrey, at a cost of £4,000, borne by Sir C. Chubbucke Henley, K.C.

A village hall and reading-room has been built as a Coronation memorial at Wiveton, Norfolk. The walls are of red brickwork. Mr. William Weston, of Cley-next-the-Sea, was the contractor.

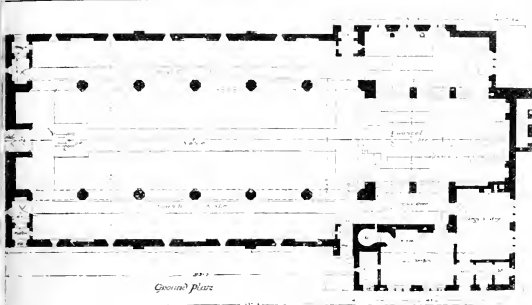
ST LUKES church GRIMSBY *







ST. LUKE'S CHURCH, GRIMSBY: MEMORIAL TO THE LATE BISHOP OF LINCOLN.—Sir CHARLES NICHOLSON, Bart., F.R.I.B.A., Architect.



ST. LUKE'S CHURCH, GRIMSBY.

ST. LUKE'S, GRIMSBY.

his church, which is of simple design, in order to suit the locality, is being built of cal brick, with Ancaster and Ketton stone dressings. The foundations are of ferro-concrete on the Coignet system. The church is to seat 700 persons. The builders are Messrs. John Thompson and Co., of Peterborough, and the clerk of works is Mr. L. Nicholson, Bart. (Messrs. Nicholson and Orlette).

Mr. William Orpen, A.R.A., has been commissioned by the council of the Royal Institute of British Architects to paint the portrait of their President, Mr. Leonard Stokes.

The Bishop of Chichester consecrated last week a new church of St. Matthias, Ditching-road, Weston, Brighton. The church has been erected to supply a rapidly growing district in the parish of Preston, and, though not completed in every detail, is opened free from debt.

On Saturday, Mr. William Burn died at his residence, Bridge-street, Morpeth, aged forty-two years. He was a son of the late Alderman William Burn, who was mayor in 1883, and was the junior partner in the firm of Messrs. William Burn and Sons, cabinetmakers. He was also for three years a member of the town council, to which he was returned at the top of the poll in 1908.

At Purley, a new hall, built at the rear of the Congregational Church, was opened last week. It measures 74 ft. by 35 ft., and will seat 600 persons. The roof is open-timbered, and the whole area, by sliding partitions, can be divided or classes. There are also a series of rooms behind. The builders are Messrs. J. and C. Sawyer, of Upper Norwood, and the architect is Mr. Hamden W. Pratt, F.R.I.B.A., of Chancery-lane, W.C. The total cost has been £3,700.

The picture "City of Refuge," by Miss Margaret Lindsey Williams, which won the gold medal and travelling studentship last year at the Royal Academy Schools, has been purchased by Mrs. C. H. Bailey, of Newport, Mon., and presented by her to the town of Barry, the home of the painter. Miss Margaret Williams's work is not unknown to our readers, for we illustrated, in January 6, 1911, the gracefully-draped figure of "Silence," which gained an award at the Royal Academy in the previous year's competition.

A circular is being issued to members of the Institution of Municipal and County Engineers on the subject of the "Standardisation of Vitrified Water Pipes." The standardisation committee appointed by the Institution, recognising that the present design of socket for such pipes leaves much to be desired, embodied an improved form in its draft specification. This specification is now being considered by the British Engineering Standards Committee, and, among other proposals, the subject of the improved socket is being discussed with objections, chiefly, the circular states, from the manufacturers represented on the committee. The circular contains diagrams of the old and new forms of sockets, and a list of advantages claimed for the latter. The new socket is practically self-centring; it requires less joining material, and is stronger than the old form.

Building Intelligence.

NORWICH.—The Norwich High School for Boys, in St. Giles-street, has been largely by taking up and reconstructing the adjoining premises. On the first floor of the new building is a lofty hall, approached by a corridor having three doors admitting to the three classrooms, into which the hall is divided when the folding partitions are drawn across. These classrooms can accommodate a hundred boys, and are fitted with a new type of desk, one to each boy, and adjoining the masters' rooms there are several more classrooms with sliding partitions, and a chemical and physical laboratory. Mr. E. A. Tench, of Station-chambers, Norwich, was the architect, and Mr. H. C. Greengrass, of the same city, the builder.

BLTTH.—The foundation-stone of the secondary school was laid last week. The school is being built from the designs of Mr. Edward Cratney, of Wallend, whose plans were placed first in an open competition for which fifty-five sets of drawings were sent in. Mr. J. A. Gotch, F.S.A., F.R.I.B.A., being the assessor. Accommodation is to be provided for 280 scholars, but the plans admit of future extensions to admit 50 more. There will be separate departments for boys and girls, although the central hall, laboratories, and art rooms will be available for both departments. The school buildings will be faced with local stock bricks burnt to a grey colour, with quoins in dark red sand stock bricks, and window arches in Lawrence's rubbers. Maple-wood flooring will be laid in all teaching rooms and main corridors. Messrs. Robson and Waddle, of Blyth, are the contractors, and Mr. R. Robinson, also of Blyth, is the clerk of works.

The Dewsbury Town Council have agreed to adopt the plan of Mr. Henry Dearden, the borough engineer, for the extension of the sewerage and sewage disposal scheme, after it has been slightly amended by Mr. Diggle, M.Inst.C.E. The full scheme would cost £100,000, but it is proposed for the present to spend but £57,000.

A marriage has been arranged and will take place in April, between Mr. Page L. Dickinson, President of the Architectural Association of Ireland, fifth son of the late Dean of the Royal Chapel, and Joan, daughter of the late Captain FitzGerald Creagh, D.A.A.G., of Cahirane, Clare, and of Mrs. FitzGerald Creagh, Rosemont, Greystones, and niece of General Sir O'Moore Creagh, V.C., K.C.B., K.C.S.I.

The Royal Mausoleum at Frogmore was opened to the public on Monday, on the eleventh anniversary of the death of Queen Victoria, when the new dome, stained-glass windows, and internal pendant and exterior bronze lamps were seen for the first time, as well as two oxymyrmecolite tablets. At these additions were designed by Mr. A. G. Neitt, M.V.O., resident architect, the windows and dome having been executed by Mr. John Pace.

Correspondence.

THE POLICY OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—In my letter which you kind published on January 19, I suggested that your readers who are members of the R.I.B.A. should wait until they had the Journal before them, with the verbatim report of the business meeting on January 8, before accepting your views.

In your editorial reply, I am astonished at your suggestion that the meeting should never be fully reported, the official minutes being, in your opinion, sufficient. That may be so for your purposes and that of your friends, who were, according to their official minutes, in a minority; for the amendment to refer the whole scheme back to the Council "was carried by a large majority." Personally, at that meeting of over 300 members, one of the largest meetings ever held at the Institute, I think it would be an exaggeration to say that twenty men voted against the amendment, which was carried with cheers.

Now, Sir, I feel sure our Council is now composed of men who, whatever their private views may be, would never sanction such an unconstitutional proposal as the suppression of a full report of a meeting; and if any member did advocate such a course, I submit he would not be a fit man to be on the Council; and further, should his name be known, he would have little chance of reelection.

But I am glad to say I have full confidence in our Council, and am sure they will not sanction the slightest tampering with our official records. Your readers are no doubt aware that the representatives of the Press are not admitted to business meetings; consequently the R.I.B.A. Journal is not only the official record of the speeches delivered at their meetings, but it is the only record.

Whatever our views may be, do let us "play the game."—Yours, etc.

SYDNEY PERKINS, F.R.I.B.A., F.S.A.

The Guildhall, E.C.

[It is for the Council of the R.I.B.A. to determine whether a full report of Business Meetings should be published. Such has not been the practice in the past. If a verbatim report is published, all interested will, at any rate, learn in more detail how Mr. Perkins would we should "play the game."—Ed.]

HIGH RAILWAY RATES.

SIR,—With reference to Mr. A. W. Gattie's lecture to the Institute of Builders, as reported in your BUILDING NEWS of Jan. 5 and the *Star* of Jan. 15, I should like to point out one other factor which tends to make our goods rates so dear.

Take our goods cars as compared to the American freight cars; where we have to load three to four little wagons one of these cars would do. I have seen on the siding at Bethnal Green Junction a large tree loaded on four little trucks, each with a rigid wheel. The wear and tear of such loading going round a curve must be awful to the permanent way; but on the American principle this tree could be loaded on to one freight car, and same having the bogie-wheels, instead of grinding and tearing round a curve, it would glide round in the easiest manner.

Many years ago my father, who was connected with the Tabular Frame Car and Wagon Co., Ltd., had these splendid specimens of the American built freight cars exhibited on a siding at Paddington, and although the English railway engineers acknowledged the superiority of these cars over their own old-fashioned trucks, they would not move in the matter, saying it would revolutionise their rolling stock, and even when this company offered to take over their old cars and utilise them in building them up into the American type cars as exhibited, they would not concede, preferring to remain in the groove they were then in, and, I regret to say, still are. Had any railway at that time had the sense to grasp the idea and

Intercommunication.

GUINEAS FOR BEST REPLY.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's final decision is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each. The Editor, of course, will ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes and about twice the size they are wanted to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesday.

The right to withhold the prize in the event of a copy being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. R. Makinson, Norwood House, Horwich, near Bolton.

QUESTIONS.

[1907.] THE NEW COPYRIGHT LAW.—Is regard to the question of copyright I should be glad for information. I am a member of the Society of Architects. When it is supposed A and B, amongst others, at the invitation of a committee submit to them designs for a church, and the committee select the design and then have the building erected, the design and the building are the property of the committee. Is there any redress?—Z. H.

[1907.] NOTICE.—It is proposed to pull down a fine, historic house, the "Old Rectory," in order to build in its place a lawn, wall for a building. The two courses of footings to boundary wall project on to the adjoining owner's land. Can an object to the courses of footings and concrete foundations of the new wall projecting on to his land? Ought the building owner to give adjoining owner notice of his intentions? If so, how long is there an act which governs the rights of building and adjoining owners outside the London area?—Londoner.

REPLIES.

[1907.] MOLDED STONEWORK.—Is not the custom to measure stone by the cubic yard in any part of the country. Mr. Wright will probably find that by a clerical error the figures have got into the wrong column. The inclusion of "beds and joints" into the item of cube stonework is correct, however, and is recognised as good quantity by all great authorities. The inclusion of the item in superficial feet should be given for the moulded work, the complete "grith" being taken as the width of the moulding. Previously it was the custom to give an independent item for the waste, the builders bracketing several items together, and submitting one price for stone and all labours complete. To remedy the evil it has become customary to describe stone in cubic feet, as before, as including "all plan beds, joints, and preliminary faces." Marginal sketches are provided, and only finished faces, mouldings, and sunk beds and joints are taken separately.—Edgar A. Rogers, P.A.S.I., 93, Heniker gardens, East Ham, E.

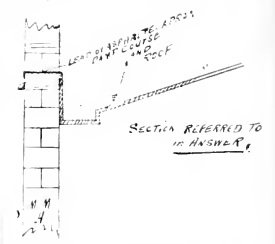
[1907.] COURT FOR LIGHT.—No building owner can legally title the space belonging to an adjoining owner, nor do the London Building Acts permit of such a course, as each building owner, when submitting plans of properties for approval, must calculate for an independent "reculation" air space to each property defined. The sections of the London Building Act, 1894, dealing with the height of buildings, and the height to be made by the building owner, and not those already made by adjoining owners. Without going further into this question, I should think that the proposed building would be at a disadvantage of a "neighbour's" air space, under the circumstances set forth, would be a moral wrong, and that of legal redress is not likely to be obtained. M.S.V., 147, Newcastle Avenue, Workop, Nott.

[1907.] COURT FOR LIGHT.—In building a court, or domestic building, to light habitable rooms, so as to comply with the London Building Act, 1894, the size of the court must conform, according to the height of the proposed existing building, with the height of the building in the Act, the same to be taken exclusively to the building for which it is primarily intended, so that the area of the adjoining court cannot be taken into consideration, so that its space may reduce that of the proposed. The reason is obvious, as there is no control over the height of the building, and it is to maintain its court in the same position, rights of light excepted, which, however, do not exist until some twenty years have elapsed, and the may be a building, or floor, or roof, or wall, or window, in his old building, and the first-mentioned court would, consequently, be insufficient for its purpose, as it is in forming an air space, and the description a great advantage can be obtained for both buildings by forming the same in conjunction

with that adjoining.—Gordon L. Thorne, 10, Athley road, Southampton.

[1907.] COURT FOR LIGHT.—Section 4 of the London Building Act, 1894, gives the minimum height, width, and capacity of "court, light, and room," and requires that adjoining open space, ventilation and communication with the outer air." Sections 4 and 41 require that spaces at the rear of a building, and spaces for light and air, "shall belong exclusively to the building," except when they abut on the River Thames or a public park. A person states that adjoining open space belongs to next-door owner; therefore he cannot use it for light and air. In "Jones v. Parry," 22 F.J. 60, the distinction between the two properties expressed, the minimum required by the Act, but only 5 ft. of the space "belonged exclusively" to the respondent Parry, who contended that the measurement should be taken to the rear boundary of the property. The court contended that the clause relating to open space was intended to prevent persons from building up to the rear boundary of their property, and that it had been so interpreted. Judgment was given for the appellant Jones, and an order was made for the demolition of the building erected by Parry. Edgar A. Rogers, P.A.S.I., 93, Heniker gardens, East Ham, E.

[1907.] WEATHERPROOFING OLD CHURCH TOWER.—My experience of old church towers (though "Rev. statesman" in question may have been just the opposite, for I have found them either to be leaking through the leadwork over flat roof to the interior, or, if the tower has only been inserted in the wall joints, and generally through age, expansion, contraction, or otherwise, the lead aprons have crept down the face of the wall, for the elements to seep into and saturate the walls. The old builders neglected or thought it was not necessary to cover the whole area of wall on each joint, and tarred and oiled at least the outer face of stonework (as sketch herewith). In my opinion, there are two methods of dealing efficiently with church towers:—1st, to cover the



roofs with at least 10 in. cast lead, turning up the same at least 6 in. above the rainwater outlets, and protecting the same with s.b. sheet-lead aprons, fixed as shown on sketches, and joints made good with mastic (some prefer this treatment, on account of lead, when dilapidated, being a commercial commodity, second-hand leadwork being very scarce, and cement, when used, being liable to be vermined, cover the boards of roof with Callender's bituminous sheeting in manner described for leadwork, and complete with asphalt finish, for which special work the advertising pages of the BUILDING NEWS will guide him to a suitable firm. With reference to the perished surfaces of the stone and granite walls, should recommend "Rev." to remove all rotten, perished, or dilapidated stones, and replace them with well-known, sound, weather-proof stone to match, bedded on bedrock, and portland cement, assuming that the latter is too tall out all joints to a depth of at least 1 in., pick the stone, or mortar, or both, out to a depth of at least 2 in., wash sand, in the proportions of 1 and 1, lining or stroking out the same in imitation of stonework joints. I cannot recommend any waterproofing liquid for permanent use, in my opinion, any of the above treatments would give every satisfaction. M. Makinson, Norwood House, Horwich, near Bolton.

[1907.] WEATHERPROOFING OLD CHURCH TOWER.—Granite walls, if in an exposed position, should be impervious to moisture. In both cases, if the tower have been pointing, it is possible for the rainwater to penetrate through the joints. To overcome this trouble, it will be necessary to rake out the joints to a depth of at least 2 in., and then to apply a solution of portland cement and sand in equal parts. If it is found the above is not the cause, try one of the following methods, which should be carried out in the following order:—1. Method the stone must be first cleaned carefully from dust. When the stone is dry, saturate with a solution of portland cement and sand, and allow it to remain for 24 hours. 2. Method the stone must again be left to dry, and again saturate with the solution. When the solution has been dried in, then repeat the operation, using a solution of chloride of calcium or of baryta; after this rain will do no more harm. Any holes may be stopped up with cement mortar, and the walls for tempering. Another method is to saturate the stone to a depth of about 1 in. with a solution of sulphate

put it into action. I am firmly convinced that we should have had a lower tariff years ago. The time and labour saved on loading, the reduction of the wear and tear to the permanent way, which is one of the great items of a railway, would have allowed them to fully cover any reduction made on their tariff bills. To look at an American freight car and then at one of our four-wheeled, rigid-based trucks, takes you back to Stephenson's time, and you wonder when are we going to advance. The old order, however, in the event of a plan being made, whether we want to get out of the "groove" or not, and some day we shall not only see the American freight car installed, but our passenger train will be built on the American principle as well, and until this is so, until we work our railways on a modern, and at the same time economic basis, so shall we have to pay through the nose, not through want of experience on our railway part, but because they will not "step up the old standard pattern" and advance with the times. I am, etc., W. DAVIDSON.

69, White Horse Lane, Walthamstow.

SKELETON FRAME BUILDINGS.

SIR, We shall be glad if you will kindly advise us the use of your columns in order to make an announcement that will, we feel sure, be of considerable interest to architects and others concerned in steel frame buildings.

It is enacted in Section 22 of the London Building Act Amendment Act of 1909 (9 Edward VII. Cap. cxxx) that, when it is proposed to erect a skeleton frame building, copies of all the plans, sections, and calculations, and all the drawings, shall be deposited with the district surveyor. As it is not a uniform or convenient alike to the architect, engineer, and district surveyor that these drawings and calculations shall be submitted upon a uniform basis, thus greatly reducing the labour of making and checking the calculations, the District Surveyors' Association Incorporated have, with the co-operation of the Science Standing Committee of the Royal Institution of British Architects and others, drawn up a scheme to be adopted by persons depositing plans, sections, and calculations with the district surveyor.

This scheme is now completed, and copies may be obtained of the Association's publishers, Messrs. Merritt and Hatcher, Ltd., 2, Grocers' Hall court, E.C., price 2s. 6d. net. The scheme provides for a uniform system of nomenclature, the adoption of uniform symbols and uniform calculation sheets for pillars, beams, and floor slabs. It also contains the formulae necessary for making the calculations, a schedule of weights of materials, and a number of tables of value. Samples of the various forms are attached.—We are, etc.,

WILFRED J. HURDCASTLE, President,
BERNARD DICKSIE, Hon. Secretary,
District Surveyors' Association (Incorporated), 9, Conduit street, W.,
Jan. 19.

At a meeting of the Esher District Committee of Districts County Council, on Friday, 19th January, the following resolution was passed:—The salary of the District Surveyor (Mr. R. H. Birknell) from £200 to £225. It was pointed out that this sum was inclusive of the surveyor's travelling expenses.

At Leicester on Monday Mr. R. H. Birknell, M.P., called on an inquiry on behalf of the Local Government Board in reference to a memorial of the residents of Esher, Surrey, in order to appeal the power of the Local Government Board for the purchase of lands otherwise than by agreement for the completion of the widening of London and Leamington Victoria Road and Salisbury Avenue.

The premises lately occupied by Messrs. Hills and Underwoods, Ltd., on 1000 of Walsley road, near the River Trent, at Rotherham, have been acquired by local citizens with the intention of converting them into assembly-rooms, with ballroom, supper room, and winter gardens. The work of remodeling, rebuilding, and decorating is now nearing completion. The architect is Mr. D. J. Treach, F.R.I.B.A., and the constructional and decorative work is being carried out by Messrs. Weeks and Sons of Norwich.

Grant Gibbs, the debtor said that he started business on his own account in January, 1904, with a capital of £500 which he had saved from his earnings. He had acted as quantity surveyor for Messrs. Brown and Sons, and when the firm failed the money due of his income disappeared. The reason he took up the somewhat leaving position he did in regard to the litigation was that he considered that he and the general body of creditors had been unjustly treated. He was justified in his action because he was advised that he had a good case. As a matter of fact, he won it before the Judge of the county court. The county-court Judge decided in his favour on every point. Afterwards costs he had never dreamed of were run up. It was possible that he would never have undertaken the litigation if he had known it would take seven or eight days. The Official Receiver: The litigation you initiated undoubtedly involved serious imputations against a number of people? The Debtor: Yes. The Official Receiver: And if these imputations were not well founded it was as certain a most as anything could be that those persons would not be content with a position which left them, as it were, convicted of serious irregularities? Yes. —Was it not therefore clear from the first that this litigation might involve you in very heavy heavy liabilities for costs? The result has proved it has done. In reply to Dr. Atkinson, the debtor said that when he took counsel's opinion upon the litigation he was advised that he had a good case, and that he had established his case he did not think otherwise than that the Judge would order the costs to be paid out of the estate. The examination was closed.

EDWARDS SQUARE LITIGATION. Allen and Others v. Bird and Others. An appeal by the defendants in the action, J. F. and C. J. Allen and the Anonymous Estates (Limited) was heard against an order of the Court of Appeal affirming a judgment of Mr. Justice Warrington. The plaintiff, Mr. Ernest Bird, as the treasurer and secretary of the Garden Committee of Edwards-square, Kensington, brought the action for a declaration that that committee was entitled to the exclusive care, management, and regulation of Edwards-square, so as to preserve and maintain the same for the use of the members of the committee, resident householders, and their families. He also asked for an injunction to restrain the defendants from locking the gates of the square, and from interfering with the committee in the exercise of their powers. The defence made to the plaintiff's claim was that the powers and rights that the garden committee had possessed came to an end on March 25 last, when a certain lease for ninety-one years of the square garden, granted in 1820 by the then Lord Kensington, expired. Mr. Justice Warrington held that the plaintiff, as representing the garden committee, was entitled to the declaration which he claimed, and also, if he required it, to the injunction. He also directed that there should be an inquiry as to damages which had been sustained by reason of the interference with the garden committee. The defendants were also ordered to pay the costs. On appeal the Court of Appeal upheld that decision. The building owners now appealed to this House. The appeal was dismissed, their lordships holding that the garden committee of the square retained their rights under the private Acts of 1819 and 1851. Appeal dismissed accordingly, with costs.

THEATRICAL ARCHITECTURAL DISPUTE. —Question of Fees. Mr. Edward Pollock, one of the High Court Official Referees, gave judgment on January 23, in an action in which Mr. Isaac Nathaniel Lyons was the plaintiff, and Mr. Ernest Runtz, architect, practising at 64 Victoria-street, Westminster, was the defendant, against whom Mr. Lyons presented a claim in respect to a series of business transactions of a complicated nature. A counterclaim was advanced by Mr. Runtz in regard to architectural services, including the preparation of plans for the Elysée Theatre that was to have been built by Mr. Lyons on a site in the Haymarket. Besides evidence of account, professional testimony was also forthcoming. Mr. Lyons calling Mr. Robert Bridges, of Messrs. Frank Matcham and Co., and Mr. Beresford Croxall, and Mr. Runtz calling Mr. Herbert Phillips Fowler, F.R.I.B.A., of Messrs. Banister Fletcher and Sons, Mr. J. Priestley Briggs, and Mr. Farrow, the Vice-president of the Surveyors' Institute. Mr. Pollock, in the course of his judgment, said that this was an unfortunate case of litigation concerning several intricate matters. The question of the Haymarket site was a conflicting one, and it was the most substantial item of the whole affair. The plaintiff's professional witnesses seemed to him to be also gentlemen of very large experience. Looking at the evidence, he came to the conclusion that £500 would be a fair sum to allow Mr. Runtz in respect of the Haymarket site. The Official Referee then

dealt with the parties' figures, and setting each against the other, and making a calculation, said that Mr. Lyons was entitled to a sum of £599 15s. 10d. in all, and there would be judgment in his favour for that amount, with costs, and also in his favour on the counterclaim, with costs. Mr. Jones protested in effect that the Official Referee had determined the figure on a wrong basis, but his Honour adhered to his decision, remarking that if Mr. Jones had anything further to say he must go elsewhere. Mr. Jones said it was very hard on Mr. Runtz. Mr. Pollock said it was also hard on him to allow him to deal with the case, as he had done, and then to make this suggestion.

TOWN PLANNING ACT CASE. — In the County-court of Marylebone on Wednesday, Judge Sir William Scott and a jury heard an action under the Housing and Town Planning Act of 1909, which contains a clause requiring all houses under £40 a year in the Metropolitan area to be reasonably fit for habitation. — Thomas Tilbury, Moreau-street, a general dealer, sued Mr. J. H. Fielding, Sutherland-avenue, for damages for personal injuries received through a falling ceiling. The plaintiff said he rented a room from the defendant in Trevorton-street, Notting Hill, and on November 22, as he was sitting down to breakfast, the ceiling suddenly fell, portions striking witness on the head, which was cut severely in several places. He had to pay several visits to the hospital. — Mr. Barnett (representing the defendant): You went into the rooms on October 2, and paid rent till October 23. Were you then unable to pay any more? I was able to pay, but the place was in an awful condition. Mr. Barnett submitted that plaintiff was a trespasser on the premises, notice to quit having been given, and that there was no duty on the part of a landlord towards a trespasser. For the defendant it was stated that on November 13 the plaintiff was given notice to leave on November 21, but that when a man was sent to do the repairs on that day, Tilbury and his family were still in the place. The repairs were done to the ceiling, and the next day, when the plaintiff had no right in the place, the fall occurred. Mrs. Tilbury, however, said the notice to quit was pushed under the door after the accident occurred. The jury awarded the plaintiff £4 with costs on Scale A.

STAINED GLASS.

WESTMINSTER ABBEY. — The Bunyan Memorial Window in Westminster Abbey was dedicated yesterday (Thursday) afternoon. At the close of the service there was a procession from the Sacrament below the altar to the window in the west aisle of the north transept. The deed of gift of the window was presented to the Dean and Chapter by Dr. Clifford. The window consists of two lights, each 26ft. high, and a headlight, the subject being scenes and incidents narrated in the Pilgrimage.

WATER SUPPLY AND SANITARY MATTERS.

BARNARD CASTLE SEWERAGE. — The Barnard Castle Urban District Council have approved plans prepared by Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor and Walling), of Newcastle-upon-Tyne and Birmingham, for intercepting-sewers along the side of the River Tees and a long retaining-wall in Galgate. The scheme was approved at the last meeting, and instructions given for an application to be made to the Local Government Board to borrow the necessary amount for executing the works.

MANCHESTER MAIN DRAINAGE SCHEME. — Mr. T. de Courcy Meade, city surveyor of Manchester, gave a lecture on Tuesday night at the Municipal School of Technology, in that city, on "The Main Drainage of Manchester." Mr. Meade described the new works for which Parliamentary sanction has been obtained, and which will cost about £1,600,000 sterling. The drains when the enlargement plan was completed would be of sufficient capacity to take the sewage from an area of sixty square miles with a population varying from 1,400,000 to 1,600,000. Much would depend upon whether districts treated a portion of their storm-water at their local works, instead of discharging the whole of it into the Manchester system. "Speaking generally," Mr. Meade said, quoting the words of Sir Alexander Binnie, "the new scheme of main drainage will make Manchester one of the best drained and in every respect the most sanitary city in the kingdom."

The late Mr. Kenneth Spicer, aged 81, of 48, Grove villas, Maidstone road, Rochester, retired builder, left personality amounting to £14,986.

Our Office Table.

On Wednesday evening the President and Council of the Royal Institute of British Architects revived the pleasant and informal "athomes" inaugurated a few years since by Sir Aston Webb. A large number of members, between three and four hundred—braved the incessant rain and met in the galleries at 9, Conduit-street, for a smoke and chat. Unfortunately, owing to ill health, the host, Mr. Leonard Stokes, was unable to be present; but Professor Reginald Blomfield, A.R.A., as senior Vice President, took his place and genially received the guests. Designs and measured drawings submitted for the Royal Institute prizes and student-ships were exhibited on the walls and screens in the galleries, and their examination evoked much criticism and comment. As usual at Conduit-street, the cloak- and refreshment-room arrangements were admirably stage-managed, and a very pleasant evening was spent.

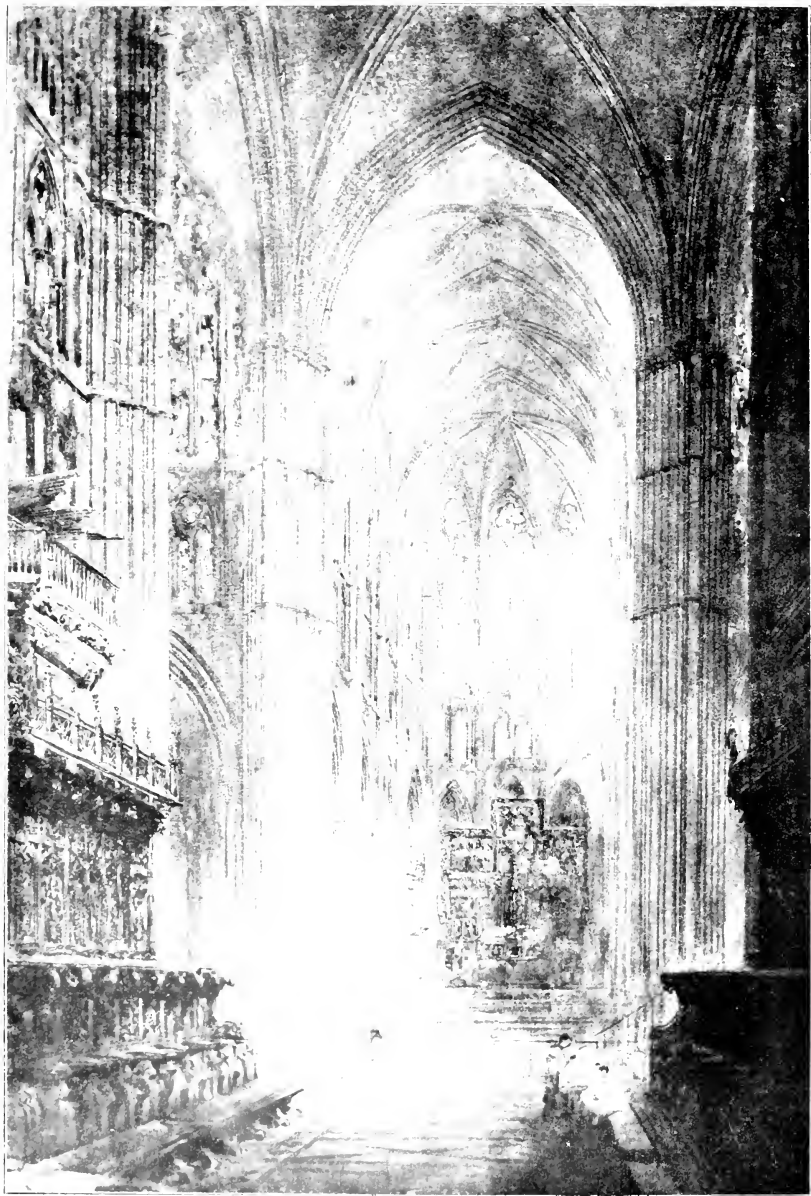
A scheme is now being carried out by which H.M. Office of Works is expected to bring the protection of Hampton Court Palace from fire up to date. The work of laying new water mains which are to furnish a high-pressure supply was begun on Friday by the Metropolitan Water Board, who are carrying a 15in. main from the Flower Pot Gate in the Hampton Court road along the main walk in front of the Palace. From this main there will radiate several 9in. mains, while 4in. distributing pipes will convey the water to all parts of the buildings. The pressure maintained in the pipes will carry the water to the highest part of the Palace, and plugs and hydrants will be fixed here and there for immediate use. A system of electric fire alarms will enable communication to be made with the Palace Fire Brigade. The Palace has also been placed in direct telephonic communication with the Kingston Fire Station. Three new cottages for the accommodation of firemen and their families are to be built in the grounds adjoining the Palace.

The Local Government Board have issued Part II. of their annual report for 1910-11, which deals with public health and local administration, county council administration, and local taxation and valuation. As regards authorities outside London, 467—or about 25 per cent of these authorities—proceeded under Part II. of the Housing of the Working Classes Act, either in its original form or as modified by the Act of 1909, in regard to houses unfit for human habitation or obstructive buildings. The proceedings taken were, in nearly all cases, in connection with buildings unfit for human habitation, only eight authorities reporting proceedings relative to obstructive buildings.

A striking peculiarity of certain Flintshire and Vale of Clwyd churches was mentioned by Mr. Edward Owen, secretary of the Royal Commission on Ancient Monuments in Wales and Monmouthshire, in a paper he read at Carmarthen on Thursday night in last week. Mr. Owen said he was much exercised over the fact that many of them are formed of two chambers of precisely equal size placed side by side, and generally containing similar constructional features. Their singularity has struck one of our ablest historians, Professor Tout, of Manchester, who has suggested that as the same peculiarity is observable in many of the churches of the South of France, its presence in Flintshire may be due to some at present unknown Aquitanian influence.

During the work of reconstruction of Goodrich House, Hatfield, which is now being carried out for Mr. F. W. Speaight, there has just been discovered the remains of a 16th-century timber building, which has been hidden by brickwork for over two hundred years. A large number of silver and copper coins, dating from the time of Charles II. to George II., have also been found. The property was originally a portion of the Manor of Hatfield, and was sold





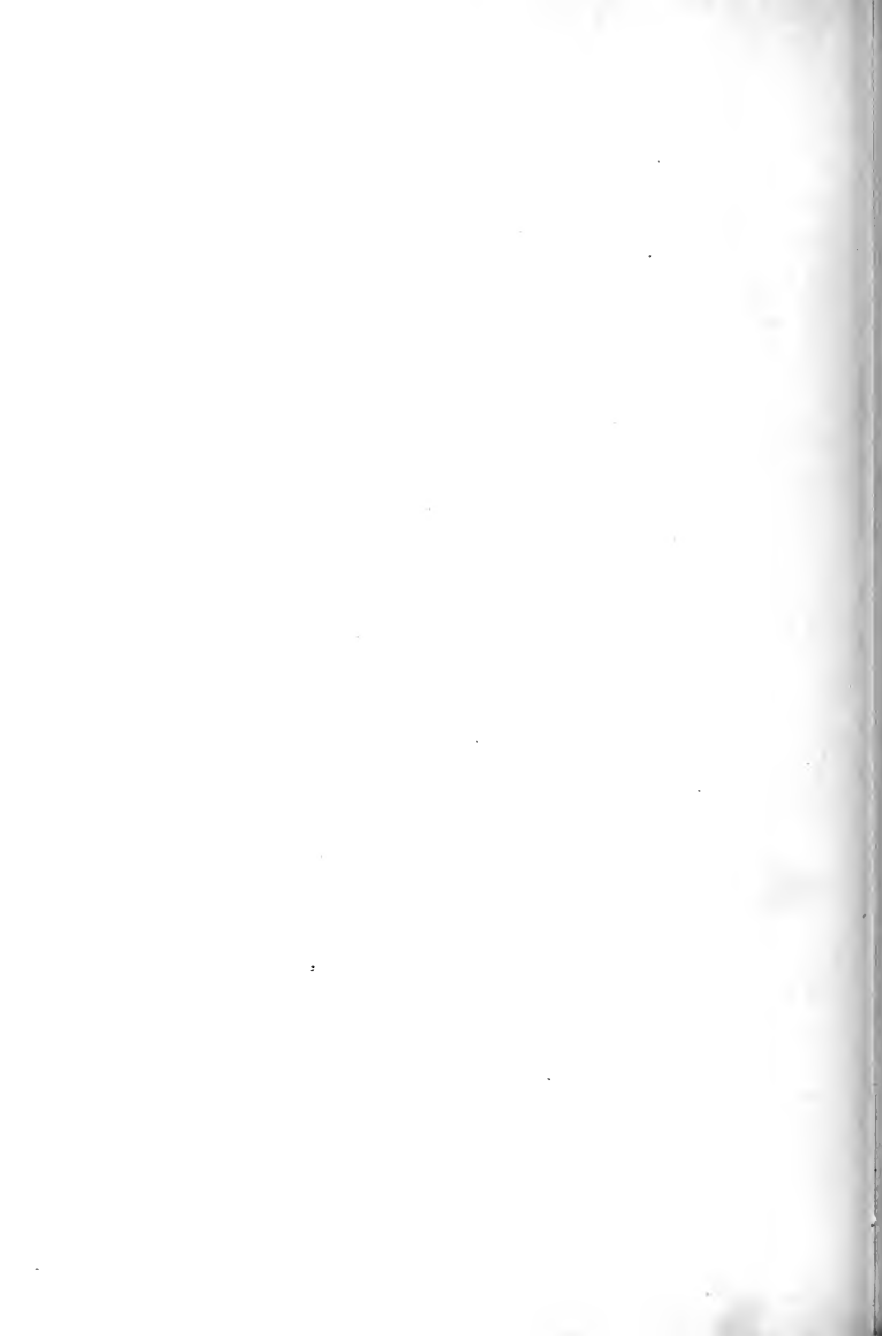
CHURCH INTERIOR OF THE BURGOS CATHEDRAL, SPAIN.
DRAWN BY MR. HERMAN C. BEVELL.



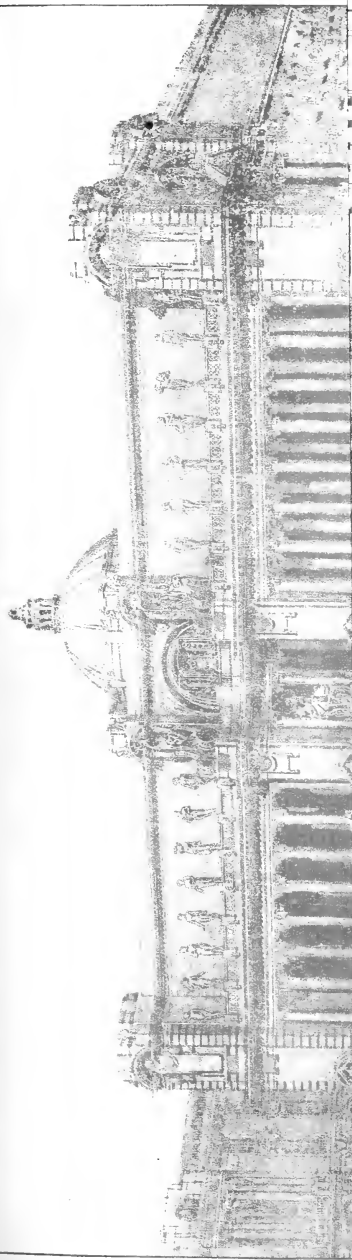
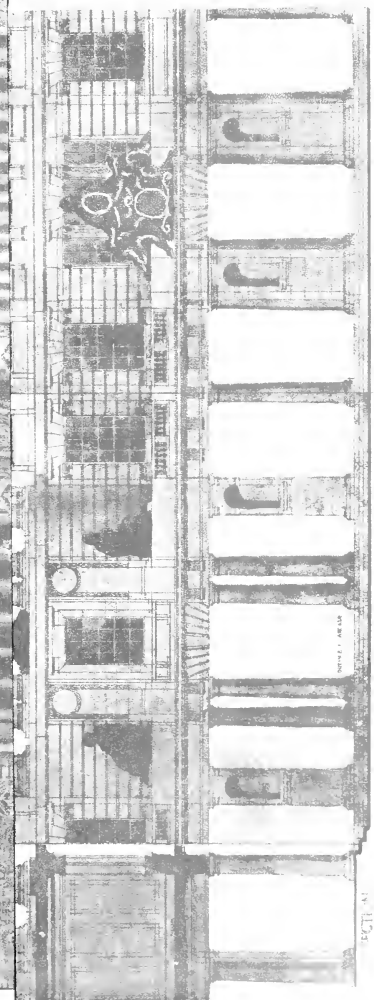
BYZANTINE CAPITAL OF THE VITH CENTURY. RESTORED FROM THE PHOTOGRAPH OF A BROKEN ORIGINAL IN THE MUSEUM AT GIZEH.

Above what is here shown there probably would have been a thick Bearing-block.

Restored and Drawn by Professor LETHBRIDGE, F.R.I.B.A.



FIRST FLOOR PLAN





THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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BEGINNINGS AND ENDINGS.

Is there any fund of spare energy in the universe, or is all that can be gained in one place lost somewhere else? It seems to be so in our world, and; if there, why not in any other? If so, is not prayer a practical request that somebody else may be robbed that we may profit by his loss? This is how the average workman thinks of his own employer—as somebody whose losses are sure to make things better for the man he employs. If this is not true, either in one sense or in the other, then "things on earth and things in heaven" are not as nearly alike as Milton seems to have supposed.

The Power we pray to seems always to have some mercy left for us. When other pleasures fade, there is still a pleasure in work, and when all other romantic things depart, we may, perhaps, still look forward to the romance of death; for beyond the tomb we may yet hope to find our earliest love—the fairest of the fair, and the sweetest of the sweet. If we have wasted a lifetime for this, what else can equal it? Darkness, rather than light, seems to be the normal state of things in the universe, and Nature wars against it, as we have to do, by setting up lamps every here-and-there about her premises. Some of her lamps seem near extinction; but we suppose, by the time these fade, fresh lights will begin to burn;—we cannot say where or how, for Nature manages her own affairs, and does not ask us to manage them for her.

We are, most of us, living in the hope that more work and better work will soon appear; but which of us can prophesy where it will come from? And which of us can be sure that Nature's favourite children will be able to get it executed? Much abler races than our own may arise, though perhaps not from earthly parents. None of us can tell where we first came from, and whom we may leave as successors. And many of us are hoping for (perhaps only wishing for) a better class of work than we have learned to do as yet. We go on and on, and improve slowly, if at all, at first. Will new faculties or new capacities come with us out of the void? Or when the old ones quite die out, must new ones be born? Perhaps the Oriental races are wiser, who say "Sufficient for the day is the evil thereof," or our own 13th or 14th century ancestors, who thought it wicked for mortal man to try and outvie in wisdom the everlasting gods? When we have all learned to fly, shall we be happier for it, or will future "Punches" have no future Briggis to record and laugh at?

Most of us are busy, or hope to be busy, with the New Year. Why it begins with what is generally its coldest season, most of us have learned, though many of us forget. A man who judged by his bodily sensations alone would think the times were growing worse, for in January they are commonly worse for most purposes than in December, and far worse than in the February that follows. This year, however, the cold will have to hasten if it is to stop the work of excavation, and put a ready-made reason into contractors' mouths when they are worried to explain why the buildings do not begin. A wise secretary, or at least, a cunning one, will take care to forget the answer before the hot weather comes, and the time arrives for laying all possible blame on the architect, in hope of bringing about his disgrace and removal. There is usually another architect, or more likely a dozen architects, ready to step into his shoes, though they may not be equally ready to step out of them when the time comes. Shamelessly, they will be appointed (as members of the congregation), but not so shamelessly will they retire; and after each one's retirement, there may be a few sittings to let, if it is a church or chapel that is in hand. If the R.I.B.A. were worth the subscriptions that are paid to it, the rascals who make up lists of faults, for which they hope to get architects removed, would find their living a harder one, and themselves in a more dangerous position. "There are tricks in all trades" it is said, and one trade is a jumble of tricks, whatever it is in getting people into it or out of it. Some day a man with a little money and a strong will may be able to alter this, and the Church will no longer be the derision of the World. Until then it is decidedly a place to fight shy of.

When did the "restoration" of village "churches" begin? Is it not time a book was published about it, saying where the money was raised for it, who appointed the architect, and what he did with it, or what the committee did, or got done? This does not concern Dissenters only. Some twenty or thirty years ago we happened to inspect an old and very interesting house with an older and more interesting church attached to it, which a younger and most interesting architect was preparing to restore on the spot. New flooring-tiles were going to replace the old ones—some with 15th-century patterns, and some of a more modern type. Did the favourably-placed architect really restore the church (perhaps with the house to follow); did he really weed the apparently predestined bribe, or was the whole affair "Dis altar

visum"? Since then we have seen neither the lady, the gentleman, the house, nor the church, and so have no later story to tell. We can only hope that it all ended well. This Christmastide an old friend sent us a photograph of Withington Church, a good forty miles ride from that last referred to. It was evidently restored, and carefully restored—with local stone and in the local manner. The old traceries, and even the old copings and finials, were carefully copied, and have not begun to decay yet. But the odd thing about it is the presence of a narrow aisle on the north of the main clerestory, perhaps 5ft. to 8ft. wide, in the clear. An architect to whom he showed the view, and who had the luck to be articulated to a church-building architect before architects who understood church-building died out—been swept away as yet by Salvationist substitutes—and this one of their few and fast-passing successors declared that he did not know that an old example in this country remained of so narrow an aisle without pews in it. The late Mr. Brooks's church of St. Columba, Kingsland, was one of the first, and internally one of the finest, of our modern narrow-aisled churches; but how many there have been since!

The Withington Church has a rather fine central tower, a little earlier, or more likely a little later, than the 14th-century time of the "Black Death" epidemic, after which our 14th-century carpentry died out, or seemed for a while to be dying out. The history of it, if we could trace it, would be worth writing even now. But the men who could have written it mostly perished in it, and probably, had they lived, must have left it to be described by reader writers. With it, in most of our towns, the Second Pointed style ended, and after it the Third Pointed style began, with few followers, who at first had fewer ideas. As time wore on, ideas multiplied, and when that way of building was nearly obsolete it was in this respect almost at its richest and best. Old tombstones are few in this country, and fewest of all at such a time, when in fear of replanting germs of the Black Death plague, fewer old memorials than ever would be taken from the parishes in which it was almost unknown. If we had a record of what burst on a middle-sized town during the days of this 14th-century visitation, in Mr. Peppys's own style, it probably would not differ very much from his account of the early days of the Plague of 1665-6 in London. In August, 1665, he noted a maid-servant of Mr. John Wright's falling sick of

the plague; she was removed to an out-house, and a nurse appointed to look to her; who being once about the maid got out of the house at the window, and ran away. The nurse coming and knocking, and having no answer, believed she was dead, and told Mr. Wright so, who, and his lady, were in great straits what to do to get her buried. At last they resolved to go to Brentwood, being half day, and there get people to do it. But they would not. So he went home full of trouble, and on the way met the wench walking over the common, which frightened him worse than before." "The people die so, that now it seems they are fain to carry the dead to be buried by daylight, the night not suiting to do it in. The King and Queen are speedily all come to Milton. So God preserve us!" "How sad it is to see the streets empty of people. My poor Lord of Hinchinbrooke's interposition is turned to the smallpox. Poor gentleman, that he should be come home from France to fall sick, and of that disease, too." "In the City died this week 6,102 of the plague; but it is feared that the true number of the dead this week is near 10,000, partly from the poor that cannot be taken notice of, through the greatness of the number, and partly from the Quakers and others that will not have any bell rung for them." "This was on August 31, 1665. By August 31, 1666, the Great Fire of London was on the point of breaking out, and the plague was rather getting out of notice. This was the end of Old London. The weather was fine, and the people whose houses had been burned camped out in the fields. In this way "The end and the beginning were." The reason: many things perplex. With motions, checks, and counterchecks." But even at the Great Plague of London it was already about four centuries since the "Black Death," and nearly three on to the cholera years of the 19th century, which we now hope will never come again. In all these years sanitation must have been at its lowest. Now oak houses are no longer built, nor even fire ones, and most brick one, get ruinously out of repair on a ninety-nine years' lease. We know what stoppages of drains are; but there must have been worse things than these in the good old days. Perhaps there will be worse things in days to come, and perhaps we are preparing future evils, as London did before 1665-6. Perhaps a nation needs to be carried away every few hundred years, and to be buried, either in darkness or in daylight, if it is to spring up stronger than ever from new roots and suckers. Perhaps the world is not old enough to manage itself (if it ever will be), and perhaps it does not know how much good it does it or its children when its elders are knocked on the head and carried off to the dwelling-places of silence. Nature, at fitting seasons, does all these things for us, and we "trundle and (afterwards) rejoice." By A.D. 1906 some of us will know perhaps, what unheard-of evils were awaiting us in "thin curtain walls" and "concrete-and-steel construction." A race of children, it may be, who were to grow up crippled from rheumatic affections of the bones, or consumption from tubercular affections of the lungs. It was not known till lately how much the old Egyptians knew from the first named of these plagues, if not from both of them; and what befall them may, in course of time befall us too. Let us tremble and beware.

ESTIMATING FOR REINFORCED-CONCRETE WORK.

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The use of reinforced concrete, as now understood, was seldom adopted in this country for ordinary buildings and engineering purposes until about 1892; but since that date it has made rapid progress, and is no longer looked upon as a freak material of doubtful value. Its qualities and characteristics have been subject to thorough investigation, so that when designing in this material, the details and sizes of the different parts of a structure may now be readily calculated and satisfactorily determined.

The strength, economy, durability, and efficiency of good reinforced concrete, together with the ease with which it can be adapted to suit the different requirements of building and engineering works, and the rapidity with which it can be constructed, are now universally recognised. The general use of this material has also been largely developed by the more uniform and stronger qualities of Portland cement now obtainable, as a consequence of the increased fineness of grinding and improved processes of cement manufacture. This factor, combined with the more careful and systematic selection, breaking, and screening of aggregates, and better mixing of materials, has resulted in the production of concretes having a strength and uniformity of composition which were previously unknown.

Reinforced-concrete work generally may be considered as having originated in France about 1855, when M. Coignet, a French contractor, in the construction of a series of arches, reinforced the concrete with a network of iron rods. Its use gradually extended in that country, and also in Germany, Switzerland, etc. Since 1880 reinforced concrete has been largely used in the United States for various constructional purposes, where its development was largely assisted by the high rates of wages for skilled labour in the building trades, and the readiness by which concrete construction could be executed by local unskilled labour under adequate supervision.

There is no doubt that for many years reinforced concrete was viewed with the utmost suspicion by engineers and architects, in consequence of the rubbish which formerly masqueraded under the name of "Concrete." Unscrupulous contractors apparently considered that an aggregate consisting of unscreened gravel and sand, or a miscellaneous collection of brick or stone debris, with adhering portions of the old lime-mortar, dust, and dirt, roughly broken, and containing a variable proportion of fine stuff, when mixed with water and a minimum quantity worked and rammed in position, could be dignified with the name of concrete. Such a material is very far removed from the concrete which satisfies the conditions laid down by the trained engineer of to-day.

To a very large extent, the details of design for important reinforced concrete structures have been worked out by a few specialist firms, who, having developed and perfected some particular system or form of reinforcement, were prepared to submit a general scheme of construction embodying these particular features. In some cases these firms executed the work with their own staff of experienced workmen; but more frequently the work would be sublet to a local building or engineering contractor. When calling for tenders, the ordinary engineer or architect would therefore receive a number of estimates from

specialist firms for the execution of the reinforced-concrete portion of the work, and probably accompanied by as many different designs as there were estimates. The cheapest tender might be accompanied by a design in some respects unsatisfactory, whilst the more satisfactory design might be unduly expensive. It therefore frequently became a matter of difficulty to determine which tender was the most favourable in all respects.

A method now largely adopted is for the engineer or architect to prepare a design and general scheme for the whole work, and then obtain tenders from large contracting firms who specialise in reinforced concrete construction, or who undertake this branch in addition to ordinary building and engineering work. These firms maintain an experienced staff for the working out of details of sizes and strengths of reinforced concrete beams, floors, etc., on any desired system, and eventually submitting the necessary details of design with estimate of cost. This method, whilst convenient in many ways, has several disadvantages. The different designs are not all arranged to give the same margin for safety and strength, and as a matter of prudence, it is necessary to subject the selected design to a detailed examination and check, to insure its suitability in this respect. Also every contractor tendering is put to the heavy expense of separately working out the details of the design as regards sizes and strength, taking out the detailed quantities, etc., before preparing his estimate. The successful tender must, therefore, not only bear the cost of such preparatory work, but also a proportion of the expense involved in the preparation of designs, quantities, and estimates for other competitions in which the contractor is unsuccessful.

Another method is to employ an independent and competent designer to prepare the necessary detail working drawings based on the system of reinforcement considered most suitable for that particular purpose. Detailed quantities may then be prepared by a quantity surveyor in accordance with the specification and drawings, and issued to a number of selected contractors for reinforced work, etc. By this means each contractor submits an estimate of cost on the same uniform basis, and the client obtains all the advantages of a competition under normal conditions.

It must be remembered that of all the many forms of building construction, the personal element enters to a larger extent in the construction of concrete and concrete reinforcement than in any other. Not only must the best materials and suitably experienced labour be available, but constant and intelligent supervision is essential in order to insure that the resultant product shall be of uniform character. Care should therefore be taken to allow only reliable contractors of good reputation, and who are experienced in reinforced concrete construction, to submit tenders.

In the execution of reinforced concrete works, arrangements are sometimes made with a contractor to execute the work on the basis of charging the actual cost of materials and workmanship, with an additional allowance or percentage on the total cost to cover the expenses of establishment charges, use of machinery and plant, and contractor's profit. This system usually ensures sound materials and workmanship, but is comparatively costly. There is not the same incentive for the contractor to exercise close supervision

The death occurred at Hull, on Tuesday, of Mr. Richard Sargeant, a retired builder, and a well-known town-man.

in the prevention of waste of workmen's time, or materials, as in contract work. No definite estimate of cost can be obtained before the work is commenced, so that frequently the total cost is considerably in excess of the anticipated expenditure. The ordinary system of obtaining competitive tenders from selected contractors gives, on the whole, the best results as regards quality of work, combined with reasonable ultimate cost.

General Principles of Construction.—Ordinary concrete possesses considerable compressive strength, but is extremely weak when subject to tensile stresses. Steel, on the other hand, has great tensile strength. As the coefficient of expansion and contraction for both materials under changes of temperature is practically the same, it has accordingly been found practicable to arrange them in an intimate relationship so as to form a convenient composite building material without producing any internal and mutually destructive stresses in consequence of such union. Reinforced concrete, therefore, consists of ordinary concrete, in which is embedded steel, or other metal bars, etc., the whole being so arranged that the latter material is called upon to resist the tensional and shearing stresses, whilst the concrete is designed to withstand the compressive stresses. If necessary, the strength of concrete to withstand compression can also be enormously increased by the addition of suitable metal reinforcement, and this is frequently done in the construction of pillars, piles, etc.

Although the term "reinforced concrete" is now generally adopted, various other names have been applied to this composite material, such as "concrete-steel," "armoured concrete," "ferro-concrete," etc. In France and other Continental countries it is known as "béton armé."

MEASUREMENT OF REINFORCED CONCRETE WORKS.

For convenience in pricing bills of quantities, etc., the various items of materials and workmanship should, as far as possible, be separated into trades, and grouped therein, according to their respective descriptions. By this means a contractor can prepare a close estimate with a minimum loss of time. The following notes indicate the system usually adopted in measuring reinforced-concrete works.

REINFORCED-CONCRETE BUILDINGS, ETC.

Foundations.—The concrete is measured at per yard cube, giving proportions and full description, including lowering to position. When under 12in. thick, the concrete to be kept separate and so described. The steel-rod or bar reinforcement to be measured at per cwt. (billed in "Smith's Work"), giving description, including fixing in concrete. Steel netting or expanded metal reinforcement to be measured at per yard super, including fixing in concrete.

Ordinary Pavings.—At per yard super., stating thickness and nature of finishing, whether floated and trowelled to a smooth surface, spike-rolled, or finished with superior materials of cement and granite chippings (1 to 2), and tin. thick, including floating and trowelling to a smooth surface, etc.

Surface Channels.—Measure at per foot run, stating the average girth, or the width and average depth. Dishings around gullies, stopped and rounded ends, angles, etc., to be numbered.

Concrete Floors.—Measure the floor-slabs at per yard super., separately detailing the different thicknesses required, and stating the height or number of the various floors to which the materials must

be hoisted—viz., ground floor, first floor, second floor, etc.

The floor-beams to be measured at per yard cube, stating the height to which the material must be hoisted. Beams or girders under 144sq.in. in section to be kept distinct, and described accordingly. Chambers, beads, mouldings, etc., to be measured as extras at per foot run, and stops, mitres, etc., to be numbered.

Plat sheeting or centering to floor-slabs to be measured at per yard super., including all strutting, fixing, and removal. Centering for arched concrete floors to be girthed on solid, and billed at per yard super. Casings or forms to floor-beams to be separately billed at per yard super., and described accordingly, including strutting and removal.

In measuring floor-beams, an alternative method is to take them at per foot run, giving size and detailed description, including providing, fixing, and removing all casings, forms, moulds, etc., complete, the metal reinforcement being billed separately.

Where concrete floor-slabs are supported on ordinary rolled steel joists of greater depth than the thickness of the floor-slabs, the concrete stilted required to the bottom flange of the joists is measured at per foot run, giving the depth and thickness of stilted on each side of the joist. Forming concrete skewbacks on steel joists for concrete arches is similarly measured and described.

The finishings to surfaces of floors are measured at per yard super., and described according to requirements as "levelling and floating surface of concrete floors to receive wood-block flooring, asphalt, etc." Or the surfaces may be finished with granite chippings, etc., as described for "Pavings." Measure the cement rendering or plastering to soffits of floor-slabs at per yard super. Plastering to floor-beams to be kept separate from that to floor-slabs, and described accordingly. Labours to arris, chamfers, beads, etc., to be measured at per foot run, and all stops, mitres, etc., numbered.

The metal reinforcement to floor-slabs to be measured as previously described, including hoisting to ground floor, first floor, second floor, etc., as the case may be. The reinforcement to floor-beams to be similarly measured and separately billed in the same manner.

Painting, whitening, colouring, etc., to ceilings, beams, etc., to be measured at per yard super.

Concrete in Spandrels over Arches.—To be measured at per yard cube, stating description, height to be hoisted, etc.

Piers and Columns.—Measure the concrete at per yard cube, describing it fully as concrete in reinforced piers, columns, etc., including hoisting to ground floor, first floor, etc. If in columns under 144sq.in. in section, the concrete to be billed separately. Casings and forms to columns to be measured at per yard super., giving full description, and stating whether square, rectangular, or circular in section. Chamfers, rounded angles, beads, grooves, etc., to columns are taken at per foot run, numbering the stops, mitres, etc. Caps, bases, bands, etc., to be numbered as "extras" to columns, giving size and detailed description of requirements.

The steel reinforcement to piers, columns, etc., to be measured as previously described, and billed separately, including hoisting to the various levels as required. Plastering, colouring, etc., to be measured as already described for "concrete floors."

An alternative method is to measure the concrete in piers, columns, etc., at per foot run, including all moulds and casings

complete, each size and description of column being separately specified in detail. The steel reinforcement, together with any special features, such as bases, caps, etc., to be separately measured, and billed as already described.

External Walls.—The concrete in supporting piers to be measured at per yard cube, including hoisting up to first floor level, second floor level, etc., as the case may be. Casings and forms at per yard super., without any deductions for door and window openings, steel reinforcement at per cwt., giving the height or floor at which the casings are fixed, and to which the reinforcement must be hoisted. All extra labours to mouldings, string courses, etc., to be measured at per foot run, stating the girth and description. Surface finishings and special features to be measured as already described for "piers and columns."

The wall slabs to be measured at per yard super., stating the thickness, etc., and keeping the various thicknesses and heights for hoisting to different floors separate. The use of casings to wall slabs is sometimes included with the item for concrete in walls, including fixing and removal complete. When measured separately the casings are taken at per yard super. (without any deductions for door and window openings), and billed accordingly, stating thickness of walls, and whether measured on one or both sides, including fixing at the various floor levels, and removal complete. Moulds for window and door openings to be measured at per foot run, giving thickness of walls, depth of reveals, and other particulars. The steel reinforcement, and the internal and external surface finishes to concrete walls to be measured as already described for "floors," etc.

Internal Walls, Partitions, etc.—To be measured as described for "external walls."

Cast or Moulded Concrete Work.—Concrete formed in blocks, as for window-sills and heads, door-heads, lintels, steps, sills, channels, copings, stringcourses, cornices, etc., is preferably measured at per foot run, stating in detail the different sizes and descriptions, including all necessary moulds and patterns that may be required, and hoisting and setting in cement at the various heights or floor levels; any metal reinforcement that may be required, to be measured separately as previously described. Special blocks, such as pier caps, kneelers and apex pieces to gables, etc., to be numbered and described, giving sizes, including all moulds and patterns, and hoisting and setting in cement complete.

An alternative method is to measure all concrete block or moulded work at per foot cube, and describe it as "Concrete formed in blocks in window-sills and heads, door-heads, lintels, stringcourses, cornices, etc., of any size or section that may be ordered, including all moulds and patterns, and hoisting and setting in cement. All exposed faces to be neatly finished to a fair and even surface." Any metal reinforcement to be separately measured and afterwards billed in "Smith's Work."

Roofs and Concrete Floors.—Concrete in roofing slabs, beams, surface finishings, metal reinforcement, casings, etc., to be measured as described for "concrete floors." Centring to slabs, roofs, and arches, vaulting, etc., to be separately described, as scaffolding, diagonal, segmental, etc., including structure, fixing, and removal.

Staircases.—Measure the concrete in stair-ways, giving full description. Any rod or bar reinforcement to be separately

billed at per cwt., and expanded in tal or steel nettings at per yard super, including fixing in concrete. Casings to split to be measured at per yard super, including strutting, fixing and removal. Casings to risers, etc., at per yard super, and described as in narrow widths, etc. Extras for projecting and rounded or moulded nosings to steps to be measured at per foot run, including moulds, etc., complete. Returned and rounded ends to nosings, mitres to same, etc., to be numbered and described. Metal treads or other patent nosings fixed in the concrete to be measured at per foot run, stating width and full description, including forming rebate in concrete for same, and fixing complete. Surface finishings, rendering, colouring, etc., to split of stairs to be measured at per yard super. Handrails, balusters, etc., to be measured and billed in the usual manner, according to the materials and description.

Cast or spandrel concrete steps, when made in moulds and fixed separately, to be measured as previously described for "moulded concrete work."

Reinforced Concrete Retaining Walls. Concrete in foundations and in retaining walls to be separately described and measured at per yard cube, including hoisting, lowering, etc. Foundations or walls under 12in. thick, also concrete laid in tidework, including protecting the exposed surfaces with canvas or boards, to be separately measured and billed. The metal reinforcement to be billed at per cwt. for rods and bars, and at per yard super, for expanded metal or nettings, and described as fixed in foundations, walls, etc. Casings and sheeting to be measured at per yard super, including all necessary strutting, fixing, and removal. Also state whether the sheeting is fixed upright, or with straight or curved battered face, curved on plan, etc. Any finishings to face of concrete walls to be measured at per yard super, and fully described.

Reinforced Concrete Piles. Concrete to be measured at per foot cube, giving full description, including use of all moulds and casings complete. Concrete in piles under 144sq.in. in section to be measured and billed separately. Sheet piles to be similarly measured at per foot cube, giving width and thickness, and including use of all moulds, casings, etc., complete. The steel shoes and metal reinforcements to be separately billed at per cwt.

An alternative method is to measure and describe the concrete piles at per foot run, including metal reinforcement, moulds, casings, etc., complete. The steel shoes to be measured as "extra to concrete piles for steel shoes," giving weight and detail of description of same.

Driving reinforced concrete piles to be measured at per foot cube, including pitching and planting piles in position ready for driving, and stating description of ground into which they are driven, etc.

If practical, planting piles in position ready for driving may be separately described and numbered, giving details of size, etc., and including one move of pile-driving gear. When executed in tidework, the planting of piles to be so described.

Piles driven from barges or floating stages to be billed separately for ordinary hand-driven piles, or an additional sum provided as "extra only for driving piles from barges or floating stages." An item for "allowance for bracing and erecting pile-driving tackle, etc., on site of work, including removal at completion" should also be provided.

Sheet or small piles under 144sq.in. in section to be separately described and billed.

Docking to Piers, etc. The concrete decking, beams, surface finishings, metal reinforcement, casings, centering, etc., to be measured as previously described for "concrete floors."

Bridges. The concrete in foundations, piers, abutments, arches, spandrels or arches, beams, floor slabs, surface finishings, metal reinforcement, sheeting, centering, forms, etc., to be measured in detail as already described.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association on Monday evening was held in conjunction with the Camera, Sketch, and Debate Club section. The chair was occupied by the President, Mr. Gerald C. Horsley, F.R.I.B.A. Mr. H. A. Hall, Hon. Secretary, announced that a visit would take place on Saturday, February 17, to the British Museum extension (by permission of the architect, Mr. J. J. Burnet, LL.D., R.S.A.), and that the annual dinner of the Camera, Sketch, and Debate Club would be held at the Cafe Monico, Piccadilly, on Friday, February 2 (this evening). Messrs. B. R. Hobbeltwaite, H. J. Higgs, J. H. Jacob, and H. S. Stephens were elected as members. On the motion of the President, a vote of thanks was accorded to Mr. G. A. Mitchell for conducting a party of members round the new Polytechnic, Regent street, on Saturday afternoon last.

THAT MODERN HOUSE PLANNING DOES NOT TEND TO OVER-ELABORATION.

A paper opening a discussion on this subject was read by Mr. A. G. R. Mackenzie.

There is no doubt whatever, observed the author, that modern house planning yearly becomes more elaborate; but the question which it is proposed to discuss to-night is not the amount of this elaboration, but whether or not it is carried to excess. It is essential, in considering the question which is before us, to remember the stages through which house-planning has passed, and in doing so to realise that the whole development is part of a natural growth. I think so all the more because remembering this helps us to take a broader view of the whole subject and not to hastily reject forms of building which have so naturally come down to us that they appear unimportant; and, on the other hand, not to be afraid to carry this development further—to carry it on in its logical course. Of all the characteristics of the modern house, the most striking, when compared with the planning of former times, is the multitude of purposes which it serves.

Keeping pace with our more complicated ways of living, we have not only increased the number of rooms, but have assigned to each a special purpose. Instead of the hall and single chamber of the Middle Ages with which even kings were content, every ordinary house must have a number of separate bedrooms, at least three public rooms, and a complicated arrangement of servants' offices, as with the development of civilisation we could not now live in those old palaces in which the only communication for a suite of rooms was by passing through each in succession. On the advent of prosperity in the times of Elizabeth, before which the domestic arrangements were negligible, the system of planning was revolutionised; the house, however large, was made one by connecting all the parts together by means of corridors or galleries.

It was to this period that Mr. Norman Shaw, who over forty years ago he awakened the architectural world to the realisation that modern houses *could* be planned with a spirit of the ancient work and with all the comforts which modern conditions demand. It is to Mr. Norman Shaw also that to some extent the initiation of the recent movement of the planning of smaller houses may be traced: at any rate, he was the first to realise the possibilities of the

good architectural treatment of the smaller suburban house, which now that garden cities have come into existence has become so important a subject for the man in the street as well as the architect. I regard elaborate planning as not necessarily leading to elaborate results. That is to say that a house which took the simplest in the world house to attain this simplicity of effect, have involved much elaborate planning on the part of the architect. An elaborate house is not the same thing as an elaborately-planned house: the one conveys the idea of complication, the other simplicity in its considered result. We are not considering whether simplicity is a merit in itself, but whether over-elaboration is a demerit, and what I contend is this: that it is impossible to be over-elaborate on good lines; although an elaborately-planned house does not always bring simplicity, a house that is planned without due elaboration or consideration of detail certainly can only bring simplicity of effect by the sacrifice of comfort. Bacon says somewhere in one of his Essays:—"Houses are built to live in, not to look upon." The ideal house is, firstly, one which is comfortable to live in, and, secondly, fair to look upon. The one follows the other. Of the works of man that approach more nearly to Nature in their perfection no many instance sailing ships: these have not been designed to look beautiful, but have become so by the process of elaboration and elimination which has continued through centuries till this ideal has been reached. And so it is with house-building: the planning is the key to the situation, and it is by elaboration and elimination of everything that has not a *raison d'être* (for elaboration includes elimination) that the perfect house is attained. That there are numerous examples of over-elaboration is true; but that some have fallen into traps ambushed by the wayside does not affect the general forward movement. When Professor C. H. Reilly, at the Architectural Congress, made his plea for a more classical treatment of the garden city, I confess I was captivated by the idea, and saw in my mind's eye relief from continual picturesque bits and fussy detail. (It is curious how pleased one is with one's own happy thoughts in picturesque features and how impatient one is with other people's.) I was captivated by the idea of a Georgian garden city designed with regard to axial lines and symmetry. That great dignity can be obtained by axial planning goes without saying; the architects of the Georgian period knew this, and those who follow them now recognise the value of vista and balance. How far this can be carried, however, in the smaller house is to my mind a very debatable question: though Mr. Geoffrey Lucas and others have succeeded, I very much doubt if they are on the true road to the ultimate solution of the problem. An elaborately-planned house is to my mind one in which everything is considered so that waste of material and useless space is reduced to a minimum. This is particularly true of smaller houses. Indeed, the smaller the house the more elaborate should be its planning. As an illustration, I would take the suggestion of cupboards. In small houses inhabited by people of moderate means it is much more necessary to fit in cupboards to every possible nook or corner than it is in larger houses where space is not so valuable, because in the former case nearly every inch of space required, but the cost of purchasing furniture, such as wardrobes, becomes a consideration. In the larger houses, the elaboration of planning would probably consist in fitting the cupboards in to suit the decoration. The development of the garden city has led to the study by architects of small houses, and the elaboration of planning which has followed has all been to the good. If a house is designed by or even the average house designed by architects at the recent exhibition at Gidea Park with the builders' erections of ten or fifteen years ago, it is ludicrous to maintain that there is any tendency except that towards improvement. Two houses in Gidea Park give an excellent illustration of my con-

tention that elaboration leads to apparent simplicity, and showing how misleading it is to talk about a simple little house as if the simplicity was attained by obvious methods. They show how by an elaborate arrangement of chimneys and clever distribution of the rooms a very simple external effect is obtained combined with a very warm house in winter, there being no waste of heat whatever. Incidentally, I should like to remark that the fact of a fire being near the door in a small bedroom is no disadvantage, as it leaves the whole of the wall-space for a convenient distribution of the furniture, and is shown more simple to plan a house such as is shown in my third illustration, also taken from the Gidea exhibition, with all the chimneys in the walls and the scullery projecting behind in the usual way. Although the author of my first illustration has described it as "planned in the simplest possible manner," I think he will agree with me that it would have been more truthful to have said, "Planned with much thought and elaboration, eventually arriving at this result." In small houses the elaboration in planning that is necessary and desirable is chiefly directed towards obtaining an efficient result with the minimum of space and expense. The space occupied by lavatories I have often thought could be further economised by making them the size of those in any ordinary corridor carriage, and using the special fittings made for that purpose. Mr. Geoffrey Lucas has kindly allowed me to add his prize house, Gidea Park, to confirm my contentions. In the larger houses of to-day the same principles of planning are being applied, though the object of the elaboration may not necessarily be directed so much to questions of economy as to additional luxury. I take it we are not here to discuss whether or not people should lead simple lives: we must take our clients as we find them, and the question which architects have to solve is how a rich country requires so many different requirements of quiet, dignified, and beautiful house can be built for him, as how to build him a house and still give him all the conveniences and luxuries he desires. By the facilities for intercommunication now available, among other reasons, life in country houses has become much more complex than it was in the past. People are continually coming and going, and the house has to be so planned that it can do so with the least inconvenience to themselves and others living in the house. The fact that ladies now take a much greater part in life generally, and are not banished to their withdrawing rooms, has led to the development of the hall, where they can meet the men and both can come and go without formality. That this apartment has to be in reality a sitting-room, sheltered from draughts, and yet apparently merely the entrance-hall to the house, has led to the development of the sitting-room. The necessity for bathrooms and winter rooms which may or may not be used in connection with each other also leads to further complications. The desire for unlimited fresh air is a consideration which is daily becoming more urgent. No one now sleeps with his or her window shut, and the fresh-air habit, like any other, tends to grow. To a person like myself, who habitually sleeps with both windows and door wide open, it is perfect torture to be obliged to go to bed at night without the feeling of oppression that want of fresh air gives; it is all a matter of habit, and this habit is on the increase. Very soon the desire for open windows will lead, as it already has done in America, to the provision of sleeping balconies attached to the bedrooms, surrounded by a dwarf wall and open on two or more sides, so that by means of shutters the side sheltered from the prevailing wind can be left open and the others closed. When the next demand will be for places where one can take an air or sun-bath, there is nothing more delightful and, as many authorities now agree, more health-giving than to expose the whole of one's skin to the sun or, at least, to the air. This is impossible in our climate without the

erection of shelters or screens, and I foresee that greatly additional elaboration of planning will be required in the future to provide such spaces either attached to the water bathrooms or forming adjuncts to the sleeping balconies. Whether the conjecture be right or not is a matter for the future; but there can be no doubt that the subject of domestic architecture is one which interests us as English architects more nearly than any other. If one looks for fine general planning and magnificent public buildings, designed on a scale to impress the mind with the grandeur of the nation, one is disappointed, for it is in domestic architecture that England excels, and I claim that it is by continual study and elaboration of planning that this reputation has been built up, and it is by that alone that it can be maintained in the future.

In opening the discussion on the paper, Mr. G. H. Jenkins said he proposed to show that modern house planning tended to over-elaboration on the wrong lines. He would digress for a moment from his main argument in order to controvert a heresy which he thought was being preached by certain of the younger school of architects, the heresy that beauty was only a side-issue, a something which could not be obtained by effort, but which, like Fame, as portrayed by Keats in one of his sonnets, "will still be coy to those who woo her with too slavish knee." He hoped that architects worthy of the name might fairly claim to be regarded as being art as well as men of business. A house would not be comfortable if it was not first to look upon, for if everything was displacing to the eye, peace of mind would not accompany ease of body. The lecturer had instanced sailing ships as having approached nearly to Nature in their perfection, and had stated that they were never purposely designed to look beautiful, but had become so by chance, in the process of development. He thought that the modern architect would not maintain that a thirty-five knot destroyer was as effective in her lines as Lord Brassey's "Sunbeam." Mr. Jenkins proceeded to argue that the cultivation of an appreciation of the various forms of beauty in art was worthy of being placed in the forefront of those attainments which should form the equipment of every artist, whether architect, painter, sculptor, or craftsman, and it was in proportion to such study that the artist attained a full share of real greatness. A man might have great knowledge of technique, forms of material, and workmanship, and yet the result of his labours would be universally condemned if he had not added to it a knowledge of charming composition, beauty of line and mass, appreciation of good colour, and all those attributes which had nothing to do with fitness to purpose, but solely concerned themselves with appealing to the eye. People nowadays were fond of collecting beautiful old utensils of bronze, copper, brass, or iron, but he could not conceive of anyone adding to it a double-lined saucepan, although it had been proved to be most perfect for its purpose in cooking. He concluded, therefore, that the modern house would be sufficient unless so elaborated as to insure its being beautiful as well as convenient. But beauty was only a secondary consideration instead of being of equal importance with convenience in procuring the ideal home. At the present time a large and increasing section of the community believed that our streets and buildings should be made to fit in with the modern progress. Further, he held that the elaboration of modern house-planning tended more to the multiplying of unnecessary conveniences than to the elimination of needless features, both inside and outside. It was much more difficult to eliminate than to do the reverse; but there could be no doubt that this was the right pathway to success in planning. We had not the same climate as America, and he doubted, therefore, whether it was necessary to provide, as Mr. Mackenzie had suggested, such things as open-air sleeping apartments in England. He could quite understand that everybody in America desired to live out of doors at certain

seasons—for instance, when there was a heat-wave. But we had not such things in England, and to require the provision of open-air sleeping apartments would therefore only add one more terror to the architect's life.

Mr. H. H. Wiggleworth thought it must be admitted that there was a certain amount of over-elaboration in some recent inventions, and the number of pipes now required in a house demanded serious study on the part of the architect to dispose of them satisfactorily. The excellent lines in a modern house, like beauty in a sailing ship, had been evolved by patient study of the practical necessities of the problem, and any architect who set himself to master the conditions to be met was bound to attain a certain amount of beauty in his house-planning by the attempt to express his practical ideas.

Mr. Geoffrey Lucas remarked that there had been a steady evolution in house-planning based on traditional methods coming down from Mediaeval times, when the central hall was a long rectangle, with an open fire, at first in the middle, and afterwards built against one of the sides. The process of subdivision into apartments had been steadily going on until corridor approaches to every room had become necessary and universal, and bathrooms and sanitary accommodation were multiplied. Although the present house-planning is simple, it was really the result of much thought and study, and it was a fact that the very elaboration of planning tended to simplicity, as architects realised what could be eliminated from the design so as to render it compact. The like process was evident in the drawings of the late Phil May, which apparently consisted of a few lines dashed off, but really represented a long and tedious process of thoughtful elimination of every line that did not tell in the perfected sketch. As to the houses at Gidea Park, they were planned on simple lines, but were not intentionally picturesque. It was quite easy to plan a so-called artistic house, with odd corners, long sloping roofs, angle corners, and the like, but it was not economical. To plan on a central line, with a carefully-balanced design, was a much more difficult task, especially on a site of limited area and for a dwelling of limited scale. In a symmetrically-treated small house, proportion and form were of far more importance than in the picturesque cottage type of building. If architects were going to make progress in house design, it must be, he thought, with a certain amount of culture and a certain amount of study for the historical, the traditional, and the picturesque, in the rejection of certain features, such as the angle nook. He did not feel so sure of the analogy of the sailing ship's lines in the anticipated growing picturesqueness of our houses. For example, our municipal buildings were growing more complex, but they did not approach the picturesqueness of some of our older town halls, or the Custom House at King's Lynn. Even such an edifice as that just named could not pretend to furnish the accommodation now demanded. The fact remained that simple domestic house-planning was far more difficult than picturesque grouping.

Mr. T. L. Dale could not agree with the views expressed by the lecturer. The aim of those who organised competitions for garden city dwellings was not to obtain a better and more convenient plan of a house, but a cheap one, and the persons benefited by the labour and thought put into the evolution of these designs for garden city dwellings were the enterprising people who were creating these suburban estates. Those who designed a house to cost £375, on which at least £500 ought to be expended, merely enabled the promoters of garden cities to raise their ground rents. The endeavour to produce houses at the very lowest possible cost was not to be commended from the architect's viewpoint. From the artistic point of view, the tendency to over-elaboration was apparent in every direction, and the strained effect was painfully apparent in too many house designs of the present day.

hand-made mortars, and practically impervious to moisture.

Among the larger works to which the new process has been applied are the reconstruction of the Grand Central terminal yards of the New York Central and Hudson River Railway, New York City; the lining with a 2in. covering of cement mortar of the steel inverted pipe siphons—many of them 11ft. 3in. in diameter—for the southern division of the Catskill aqueduct; the treatment, to prevent disintegration and rock displacement by the action of the elements, of a section of the Bergen Hill archway, recently cut by the Erie Railway Company; the recoating with gypsum stucco of the handsome front of the Field Museum of Natural History, Chicago; and, most important of all, perhaps, the protection of a considerable extent of decomposing rock in the Culebra Cut of the Panama Canal.

THE CENTRAL HEATING AND POWER PLANT OF MCGILL UNIVERSITY, MONTREAL.*

By R. J. DUREY, B.Sc., M.A.E., M.I.C.E.

Economic and other conditions have led, in many places, to the development of central plants for the distribution of heat to large groups of buildings, or to districts in towns, and these installations are in successful operation, both with and without accompanying electric generating-stations.

The present paper describes the arrangement and equipment of a central heating plant, combined with an electric-light and power station, designed to serve the various buildings of McGill University. Although only of moderate size, the installation is of interest on account of the somewhat severe climatic conditions and the unusual nature of the service. Attention is called to the fact that the economic possibilities of such a station depend very largely on the relation between the demand for heat and that for electric current.

The University buildings were, up to 1908, heated individually by their own steam or hot-water equipment, and took current from the local electric-supply company. The coal used for the heating service was necessarily of an expensive kind, and the cost of current was rather high. Economy and improvement in service, therefore, were sought by utilizing cheaper coal in a central-boiler plant, and heating the various buildings from one source, employing for this purpose, as far as possible, the exhaust steam from electric generating sets. The buildings which will ultimately be served have a total volume of about 7,570,000 cubic feet; they contain 81,000 square feet of direct-radiation heating surface, need 185,000 cubic feet of warmed air per minute for ventilation, and require as a maximum about 475 kilowatts for light and power. The greatest demand for steam for heating and ventilation for all the buildings in cold weather would be about 30,000lb. per hour.

The station as at present working supplies current to eleven buildings, and heat to five, and the heating service will be extended to all the buildings as opportunity serves.

A brief description of the systems of heating and ventilation in general use in Canada for large buildings, and a description of the nature of the demand for steam and current for the University purposes, is followed by notes as to some of the problems arising in the design and construction of underground piping systems for steam and hot water.

The McGill power-house itself is not of an unusual type, its equipment including four water-tube boilers, three steam-electric generating sets, the necessary heaters and auxiliary machinery, and the ordinary apparatus for the switchboard and electric accessories.

The heat-distribution to the buildings being largely by means of forced-circulation hot water, as well as by steam, the heaters and circulating pumps are installed in the

engine-room, and are at present capable of supplying hot water to 60,000 square feet of direct-radiation heating surface. Means are provided for obtaining a record of the heat delivered to the heating systems of the various buildings.

The electric distribution is by underground cables throughout, the cables as well as the heat-distributing pipes being carried partly in tunnel and partly in conduit. Secondary heaters have been installed in two of the buildings, in order to avoid the expense of renewing their existing heating pipes and radiators.

The paper closed with a description of the methods of operation adopted, and the systems of temperature regulation employed, together with some notes as to working costs.

ST. AIDAN'S STATUE AT ST. AIDAN'S CHURCH, WEST HARTLEPOOL.

We give herewith a photo of a statue of St. Aidan in the niche of the tower of St. Aidan's



STATUE OF ST. AIDAN.
(Mr. F. W. DOYLE JONES, Sculptor.)

church, West Hartlepool, recently dedicated by the Lord Bishop of Durham.

The sculptor is Mr. F. W. Doyle Jones, of 3, Wentworth Square, Manresa-road, Chelsea, S.W.

EAST ANGLIAN RURAL CHURCHES AND THEIR DECORATION.*

By WILLIAM DAVIDSON.

In opening the lecture, Mr. Davidson stated that in no other part of England, during the Middle Ages, had there been a greater activity in ecclesiastical architecture and

decorative and applied art than in East Anglia. Many fine examples of all periods of architecture from the pre-Norman to the 18th, as at Great Dunham, to the great Perpendicular rural churches of the 15th century, such as Walpole, St. Peter, Cawston, Sax, etc., were shown and described. The influence of material on the design was illustrated by the great prevalence of flintwork in the building stone being readily available, built either as a concrete wall or used as a mosaic facing in various colours. The frequent use of round towers was also held to be due to the same reason—lack of stone for corners and dressings. Of Norman work, the central tower of South Topham, the arcades at Castle Acre, Walsoken, Binham, Wymondham, Hales, and Hadleigh, and the doorways at Thwaite, Aldeby, South Burlingham, and Easton were described as fine examples. The beautiful parish church at West Walton, with its magnificent lich-gate and bell campanile, and the west front at Binham, were stated to possess as fine Early English detail as any in the country. The stone carving of the nave-pier-caps at West Walton marked the high-water mark of such work in England. The Pilgrims' Chapel at Houghton-le-Dale was given as an exquisite example of Decorated work. In discussing the transition from Decorated to Perpendicular, instances were quoted which, in the lecturer's opinion, proved conclusively that these two styles were very much mixed up, as it was perfectly evident that much of the Decorated work was executed long after the birth of Perpendicular, showing that, even in the best and most traditional of the so-called "good old days," men were not above copying a "good old style." This mixture of the rigid and flowing lines gave the Perpendicular work in Norfolk a freedom and charm which was not to be found in work of the same period in other parts of the country. In speaking of the great churches of the 14th and 15th centuries, the main dimensions of a few were given, and the evolution in plan described. In the East Anglian church the chancel roof was usually lower than the nave (Long Melford and Southwold were quoted as notable exceptions), from which it was generally separated by a chancel arch and a rood-screen, and in some cases a window existed in the east gable of nave, over chancel arch. The loftiness of many of these churches, with their high clerestory windows, was shown by examples at Sall, Cawston, Upton, and Potter Heigham. Views were shown of the great towers at Sall, Cawston, Blofield, Tunstead, Wymondham, Lavenham, etc., which in some cases Mr. Davidson considered, from their unfinished appearance, must have originally had a wood or lead lantern, such as we find at East Harling, Swaffham, Aylsham, etc. The walls of some of these towers were 7ft. thick at the ground-level. Many north and south porches with decorative flintwork and carving existed—among others, Worstead, Lavenham, and Kersey being mentioned and shown as good examples. The great wealth of fine fonts and font covers was illustrated by many notable examples—Walsingham, Upton, Hadleigh, and Palgrave being specially mentioned; also the font covers of various types, particularly those of Trunch and Sall, which showed traces of the original colour. A very special feature of the lecture was the numerous slides of single and double hammer-beam roofs, which, along with the rood-screens and fonts, were the glory of the Eastern Counties. Of the single type, Ludlum, Potter Heigham, North Burlingham, Trunch, and Southwold were stated to be among the most beautiful in composition, line, and design. The magnificent double hammer-beam roofs at Knapton and Cawston were illustrated by many detail slides, giving a poetic impression of their beauty, under various conditions of lighting. The evolution in design from the stone roof was traced, and the various schemes of roof-painting given in detail. A short account was then given of the famous painted rood-screens of Norfolk and Suffolk, and many beautiful examples of the figure-painting shown, with details of mouldings and floral painted ornament. A description

* Read at the ordinary meeting of the Institution of Civil Engineers, Jan. 30, 1912.

* A lecture delivered before the Leeds and Yorkshire Architectural Society, Jan. 25, 1912.

of the most colour schemes was given. Several schools of figure painters were shown to have existed, and the lecturer had no doubt whatever as to nearly all the work being that of English artists, though foreign influences were clearly evident notably Florentine, Flemish, and German. The archaic influence of the Byzantine was said to have survived to a later date in the English Gothic than in the Italian—probably about a hundred years. In speaking of the screen and wall paintings, Mr. Davidson expressed the opinion that these do not seem to have been properly studied, otherwise the great beauty of many of these fragments would be pointed out more to students of decorative art. Mr. E. W. Tristram, of London, has, however, taken the study of English Medieval wall painting up seriously, and it was to be hoped his fine collection of drawings and research would one day be published. On the Continent such work is done at the expense of the State. Many rooms of the National Gallery were devoted to Italian and other foreign schools; but we may hunt in vain for a solitary example of our own great Medieval school of decorative art. No one wished to see those paintings taken out of their right place in the churches; but there are many fine examples in the hands of private individuals, a few of which could surely be acquired for the nation. In concluding his paper, Mr. Davidson showed and described the work of various crafts, such as glass, iron, brass, and leather work, the fine quality of which showed how all the arts arose and developed with that of architecture. The Medieval church in East Anglia, at the height of its splendour, possessed a great architectural and decorative unity, and must have simply glowed with colour—the floor, frescoed walls, painted screens, painted roof, and stained glass all blending harmoniously together. In such work there is a great heritage and inspiration; but under existing conditions it is difficult for even the best of men to do their best and to emulate such glorious work.

The lecture was illustrated by numerous detail drawings, water-colours, and lantern slides.

THE SAXON PORTLAND CEMENT COMPANY, LTD.

Notice is given, in pursuance of Section 188 of the Companies (Consolidation) Act, 1908, that a meeting of the creditors of the above-named company will be held at the registered offices of the company, Cambridge, on Tuesday, February 13, 1912, at 12 o'clock noon.

The company, of course, is only in voluntary liquidation in consequence of sale of the company's undertaking to the British Portland Cement Manufacturers, Ltd., whose capital will be approximately £5,500,000. The business continues under present management until further notice. Creditors' claims may be paid in full in ordinary course as they become due. Running contracts are to be continued as heretofore unless advised to the contrary. The winding up is a necessary formality only; but a meeting of creditors must be convened according to Act, but it is not necessary to attend. Still, it is hoped, however, that creditors who desire to obtain information will attend the meeting and see for themselves. Invoices and statements should be forwarded to the works at once.

The Portland Cement Manufacturers, Ltd., 122, Cannon Street, London, E.C., and the Portland Cement Manufacturers, Ltd., 122, Cannon Street, London, E.C., are the joint owners of the works at Cambridge.

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OBITUARY.

The death is announced, at the age of 82, of Mr. William Glover, F.R.I.B.A., formerly of Newcastle on Tyne, and a past president of the Northern Architectural Association, but since his retirement living at "St. Helen's," Church road, Southbourne, Hants. Mr. Glover died while on a visit to a friend's house in London, and was buried in the family grave at St. Andrew's, Clewer, near Windsor. He was a generous benefactor to the Northern Association, and some time ago presented £500 to the committee of the Tait Art Gallery at Newcastle, the interest to be devoted to the purchase of pictures. A little while before his death he gave £2,000 to endow two beds at the King Edward VII. Hospital at Windsor; the institution further benefited under his will. Mr. Glover had been a Fellow of the Royal Institute of British Architects since 1899, and some years since served as a member of Council.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH SANITARY SOCIETY.—Dr. Drinkwater, lecturer on chemistry, Surgeons' Hall, Edinburgh, read a paper before that society on Friday night on "Modern Treatment of Water Supplies." The lecturer showed how, by the increase of manufacturing industries, our rivers were not now available for domestic supply, and that our large towns had to draw their supply from upland gathering grounds and lochs a long distance from the distributing centre. In times of drought, like last summer, these sources were apt to deteriorate in quality and diminish in quantity. The chemical treatment of water supply was a modern innovation, and he proceeded to describe the various methods which had been adopted. The theory of sand filters and the chemical changes which took place in a water during filtration were explained and illustrated by numerous analyses. The construction of mechanical filters and the use of coagulants such as alum were described. The use of alum on a soft water was condemned. The effect of "poliarite" and "oxidum" on waters, the Aqua Sana method of removing organic matter, and the use of ozone and sterilisation by the mercury vapour lamp, as employed in some Continental towns, were also referred to. Water softening on a large scale and plumbo solvency of certain waters were explained. Referring to alum, Dr. Drinkwater stated that alum had been used by the Edinburgh Water Trustees on the Talla water, which was largely peat water. Of what had actually been done there they were not certain. The Water Trust had not taken the general public into their confidence, and he thought the Water Trust were wise not to do so. He could easily understand, however, that if any more alum was being used than the water would decompose, some of it might get past into the filters, and do very serious harm to pipes, especially to hot-water pipes.

GLAMORGAN ASSOCIATIONS WITH NEIGHBOURING CATHEDRALS.—The Cardiff Naturalists' Society was addressed on Thursday evening in last week by Mr. Edwin Seward, R.C.A., F.R.I.B.A., on "Neighbouring Cathedrals; and an Abbey concerning Glamorgan History." His remarks were illustrated by a fine series of lantern slides from negatives from Mr. J. Blount Hopkins. Mr. Seward recalled the interesting facts that the earliest Christian church in England was erected at Glastonbury, and the first British bishopric was that of Llandaff. Touching on the importance of Glamorgan in England's political history under the Normans and Plantagenets, and having touched upon the fine examples of Norman and Early English work both in the churches and castles of South Wales and Monmouthshire. Mr. Seward went on to speak of Llandaff Cathedral, emphasising its points of architectural and archaeological interest. Thence he moved on to Gloucester and Tewkesbury, pointing out the close local connection of both these great ecclesiastical

centres in early days. Tewkesbury Abbey was a mausoleum for many of those who figured in the early records of Glamorgan and of Cardiff. Its monuments, as a whole, were unsurpassed in interest, save only by those of Westminster Abbey itself. Mr. Seward concluded with an account of Wells Cathedral, which he described as a "Te Deum" in stone, and explained the reason why its architectural glories had escaped the ravages of the iconoclasts at the time of the Reformation.

LONDON MASTER BUILDERS' ASSOCIATION. A council meeting of the London Master Builders' Association was held at the offices, 40, Abchurch Lane, Kingsway, W.C., at 4 p.m. on Thursday, Jan. 18, 1912, when the chair was taken by the president, Mr. G. Bird Gosdon. The finance committee's report was submitted, and the council, on the committee's recommendation, agreed to discharge in full, up to date, the claims made upon the association on behalf of the National Federation reserve fund. The Amalgamated Society of Carpenters and Joiners gave official notice to terminate the existing working rule agreement on June 8 next, and with the notice was forwarded a proposed new working rule agreement, which was signed jointly by the secretaries of the Amalgamated Society of Carpenters and Joiners and of the Furnishing and Cabinet-making Societies. It was proposed to hold a conference, with the object of discussing the recognition of the latter society, which the council had declined to acknowledge as a branch of the building trade. The council maintained its objection, and declined to hold a conference to consider the matter. The following were elected ordinary members of the association:—(1) Mr. B. W. Sightingale, Albert Embankment, S.E.; (2) Messrs. E. A. Roome and Co., 36, Basinghall-street, E.C.; (3) Messrs. W. Blay, Ltd., Dartford, Kent; (4) Messrs. F. and J. Wood, 64, Cleveland-street, Mile End, E.; (5) Messrs. Lyle and Co., 12A, Trafalgar-square, Chelsea, S.W. Messrs. Arthur Newman, Ltd., Cranbrook-road, Hford, E., was nominated as an ordinary member. It was decided to hold the annual general meeting on Thursday, February 29 next, and the annual dinner in the Whitehall Rooms, Hotel Metropole, Chancery Cross, on Thursday, February 22, and it is hoped that the president will be well supported by the members on both occasions.

A statue of Francis Bacon is being executed by Mr. F. W. Pomeroy, A.R.A., and will be set up early in the summer, in South-square, Gray's Inn.

The Mersey Docks and Harbour Board have decided to construct a new bridge, connecting the pierhead with the George's Landing-stage, and remove the present No. 2 bridge to a position slightly to the southward. The estimated cost is £25,000.

The New Ross Urban Council contemplate the erection of eighteen houses on the Ballagh under the Housing of the Working Classes (Ireland) Acts. The houses will face on two streets, with the back dividing-walls of the yards abutting. The scheme is being carried out at a cost of £28,500. The architect is Mr. A. O'M. Lovell, M.T.A.L., Waterford.

Mr. Frank C. Baldwin, second vice-president of the American Institute of Architects, and who for the past eighteen years has practised his profession in Detroit, Mich., has moved to Washington, D.C. Mr. Baldwin will retire from active practice, and will devote considerable time to the administrative duties of his office in connection with the headquarters of the Institute at the Octagon.

A permanent church of St. Michael is about to be built at Golders Green, Hampstead, from plans by Mr. J. T. Lee, of Great James-street, Bedford-row, W.C. The style will be an adaptation of the Early English period to modern requirements. The church is to contain 750 sittings, and will consist of nave and aisle; a chancel 35ft. long and 40ft. high, and western porch with a baptistry in the centre the whole width of the church; a chapel, choir, vestry, and clergy vestry, an ambulatory round three sides of the chancel, with an oratory chamber and space for supplementary choir above. The estimated outlay is £8,500.

CURRENTE CALAMO.

The warning of the Council of the R.I.B.A. with regard to Town Planning and Garden Suburb Schemes, which will be found elsewhere under the head of "Competitions," is timely and needful. Certainly the connection of architects with projects of this kind should be confined to the design of the buildings, and should not extend to the erection thereof. And as certainly architects should not lend themselves to facilitate such departures from legitimate practice by acting as assessors in competitions, unless the architect's participation is confined to the design only. We need not recall some recent instances to emphasise the wisdom of the R.I.B.A. The experience, probably, of those who have been led to lend themselves to the purposes of the projectors will have sufficiently convinced them of its wholesome and needed exercise.

The *Halifax Guardian* devotes considerable space to Professor Adshead's report on the designs submitted in the local town-planning competition, the result of which we gave last week on p. 126, and to a report of the proceedings at a meeting in the mayor's parlour, at which the Right Hon. J. H. Whitley, M.P., the promoter of the competition, was present. The public spirit exhibited by Mr. Whitley will, we trust, incite other wealthy men to promote similar competitions in their own towns and districts, and thus encourage architects to take their proper share of the work to be done under the Act. It is quite true, as the mayor of Halifax said at the meeting, that without the co-operation of landowners and architects, the best will seldom, if ever, be got out of any scheme to improve or beautify a town. Mere road-planning is, after all, a small part of the problem. In every scheme the local, social, and industrial conditions will differ, and only the local architect, and he only, if he has brains and industry enough to study those conditions, and avail himself of the facilities the Act offers, can really make the best of it.

We hope architects everywhere grasp this, and that they will respond heartily and intelligently to encouragement like that offered by Mr. Whitley. Then town-planning will not get into the hands of some of the freaks, as some of the "garden-city" making has. In his report on the eight designs submitted at Halifax, Professor Adshead points out that the application of the Act, providing as it does dispensations in the by-laws, offers opportunities for the construction of cheap residential approach roads, and for paths and secondary roads of exceptional types, which if adopted would open up sites at present quite inaccessible under the ordinary by-laws. This is one of the most important points in connection with the adoption of a town-planning scheme with reference to Halifax. Unfortunately, says Professor Adshead, none of the competitors who have submitted designs appear to have fully availed themselves of the possibilities of the Act in this connection. We, of course, have not seen the designs, and so cannot say how far that and his other criticisms are justified. Whatever the individual defects of the plans may be, we have no doubt, as Mr. Whitley said, there is not one of them that does not contribute one or more good points. That is something gained in a friendly preliminary competition of this sort.

St. Botolph's, Alders-gate, is evidently doomed, and the daily papers, according to the galleries they play to, are either moralising about the beauty of the building that is to be transferred from a forsaken church to some brand new suburban district where not quite all the people go to the picture palaces on Sunday evenings, and piteous pleas for the historical interest of these relics of old times, so dear to the spiritually-minded citizens, however few in number, who have the luck, as we had for thirty years, to live in the healthiest and best-kept part of London. There is something so sacred in the veneration of Englishmen for the mere structures of places of worship that one can only wonder why it survives their demolition and the use of the sites for more or less respectable temples of Mammon, and yet recoils with horror from their transference to other good uses. But for that, St. Botolph's, which is quite a type of the comfortable and homely building the easy-going 18th-century Churchman liked his church to be, might stand where it is for many a year to come.

The Road Board, which has done little yet but accumulate the money derived from the petrol tax, is at last moving with regard to the construction of a road from Windsor to London. The idea is that a new or widened road from Cromwell-road to Hounslow and Windsor by Hammersmith and Brentford should be made. The Road Board has convened for February 14 a conference of all the local authorities through whose areas the suggested new road will pass to discuss the matter. The exact funds at the disposal of the Road Board are unknown; but the motor 'buses alone yield £50,000 a year through the petrol tax. The local authorities will, as usual, be expected to defray part of the cost of this big scheme, which must cost some millions. Certainly Brentford-street has long been a dangerous and utterly inadequate main thoroughfare.

Mr. Robert Applegarth, who will be remembered as one of the earlier secretaries of the Amalgamated Society of Carpenters and Joiners, celebrated his 78th birthday on Friday in last week. Mr. Applegarth, who was a native of Hull, was secretary of the Amalgamated Society at the time of the strike during the building of the Strand Law Courts, and during the inquiry as to the trade union outbreaks at Sheffield. In the latter case, before the inquiry was held, he was consulted by the then Home Secretary, and stipulated that there must be a guarantee of indemnity before they could expect to get at the truth. That was conceded after a time, and the chief conspirator, Broadhead, confessed what had been done. Mr. Applegarth's recent good work on behalf of the better education of all craftsmen is well known to all readers.

Popular guide-books to architecture are, as a rule, not worth much. "Architecture," by Professor W. R. Lethaby, F.R.I.B.A., the last new volume of the "Home University Library" (London: Williams and Norgate, 14, Henrietta-street, W.C.; 1s.), is a welcome exception. The illustrations are not worth much—perhaps in such a generous shilling's worth of 256 pages, well printed and decently cloth-bound, it was impossible to do more—

but the matter is all right. Beginning with an excellent summary of the main facts of architecture and its origin, Professor Lethaby lucidly sketches the progress of the art from the earliest Egyptian examples down to the last brand new modern Renaissance revival, and concludes with a level-headed review of the present position. Probably, of the three courses open to us in which Professor Lethaby indicates, the main influence will be the second—"some turn in civilisation, quick or slow, which by a change of conditions will compel a change in the arts." Meanwhile, we suppose, the "treadmill of style-mongering" will continue to grind, and the "successive fashions of little party cries and their enthusiasms" will ravish the jaded imaginations of their votaries and delight the ignorant vulgar. Some hope is left, anyhow, in the chance that, amid the rant of the crowd and the feeble exhortations of the pedants, quiet plain-speaking and common sense will appeal, as Professor Lethaby does, to any man with a spark of intelligence and a gleam of good taste.

A useful portfolio of drawings of "Building Construction and Architectural Drawing," by John A. Reid, L.R.I.B.A., Teacher of Building Construction under the Glasgow School Board (London: Blackie and Son, Ltd., 50, Old Bailey, E.C.), will be found of considerable service to elementary students, and possibly to some young architects. There are eighteen plates, embracing nearly all structural details. Mr. Reid's drawings are excellent, and his brief accompanying notes models of conciseness and perspicuity. Here and there differences which are found in Scottish practice will be noted, but to no such extent as to confuse the student South of the Tweed. If Mr. Fra. H. Newbury, who contributes the preface, is right, and "every professor and every instructor charged with the duty of education in Scotland holds his post because of the work of his own right hand or the capacity of his own brains," then we fear the "predominant partner" is still as much behind the Northern kingdom in matters of technical training as she is as regards general education. We have not quite got rid of all the "Theoricians" of the mid-Victorian age here, and few of them, we fear, could write and draw with the verve and accuracy which Mr. Reid manifests.

From our own experience of the many drawings that reach us, we should say that lettering receives less attention at the hands of architects and architects' assistants nowadays than it did fifty years ago; and, moreover, that ability to design a good letter is often thrown away, because of the lack of sense to use it in the right place. Much more of the same sort might be said when we contemplate the carelessness of writers and decorators who fail to fill their spaces accurately, and then dodge in "little curly bits" to make up lines and corners. Again, the mere copyist is seldom a good letter-writer. There is as much room for individual character in lettering as in any other branch of art, but none for the eccentric, bizarre, and often illegible products of the writer whose "quaintness" runs riot at the expense of real originality. A useful little shilling booklet, "Distinctive Lettering and Designs," by A. J. Hewett, is just published by The Trade Papers Publishing Co., Ltd., 365, Birkbeck Bank Chambers, W.C., which we

high as those undoubtedly held by the framers of the proposals.—Yours faithfully,

K. GAMMELL, A.R.I.B.A.

17, St. Peter-street, Bedford, Jan. 29.

SOANE MEDALLION COMPETITION. 1912.

SIR,—I know nothing of any of the competitors, and only write as an onlooker, sharing your regrets as expressed in your leader of this week, when the designs for the R.I.B.A. prizes were reviewed. You say that it was a "good competition" for the Soane Medallion. I think you are right; but, all the same, it was a failure, seeing that no one has carried off the prize. Is this result the fault of the competitors or the Council? By "the Council," of course I mean those who set the Conditions in this case. The words are: "The building is to be of a monumental character, suitable for important civic functions of various kinds, and is to be in a public park, and situated 100ft. back from the road." When is a guildhall not a guildhall? When it is put in a public park. This question may be as silly as the answer is, and I put neither forward seriously, save in so far as both serve to express the confusion involved in the situations which are quoted above. A "guildhall" is nowadays a misnomer, and can only be applicable as at Westminster or Norwich and Cambridge, where the county council or borough council have taken over premises hitherto so named. Strictly speaking, a "guildhall" is the hall of a corporation or guild dealing with some craft or historic company. The Guildhall in the City of London enjoys an ancient position as the assembly-place of the all and several old guilds once famous in the Metropolis of our forefathers and freemen of the City. I need not labour the point; but obviously a county-council or city hall is not a "guildhall," and, besides, the Conditions—which I say are at fault—gave accommodation requirements indicative rather of an assembly hall or concert pavilion attached to festivity rooms, not for offices for municipal purposes, as in a "guildhall," *pace* "council buildings." The problem thus put was essentially misleading and contradictory. What were the competitors to do? The public park site suggested a design indicative of its environment, with sweeping approaches and big open spaces. Thus the abounding pretentiousness of some of the schemes submitted, and which, in consequence, ill accorded with the essential requirements of a "guildhall" for civic functions, as usually understood, with a hall being led up to by reception-rooms, and the whole capable of being used, as a whole, like any City company's hall would be. Necessarily, such premises are generally situated in the more central parts of a town, and at most on island sites, 'midst other buildings. It is not surprising, therefore, that the competitors found themselves in a fix, not knowing quite what to do. The park site "100ft. back from the road" encouraged grandiose ideas out of harmony with the project. The fault is due to want of care and a little forethought in drawing up the Conditions, which in future must not be left so slack and vague.—I am, etc.,

OS A RONGER.

The rural district council of Maidstone have raised the salary of their surveyor, Mr. Buebridge, from £300 to £375 a year.

An influential committee has been formed among the Mohammedans in London to raise a large sum for the building of a suitable place of worship for members of the community. A site in South Belgrave has been purchased, and on this a mosque, library, reading, and lecture-hall will be erected, the contemplated outlay being about £100,000.

It is officially stated in Calcutta that until the most highly qualified European architect and sanitary engineer obtainable, both to be selected by Lord Crewe, have visited Delhi before and during the rains, the Government will select no site for the new capital, but will merely acquire land. A committee will subsequently sit to supervise the plans that have been agreed upon.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

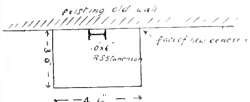
We award the guinea to Mr. Fred Wetherfield, 7, Thirlmere-road, Streatham, S.W.

QUESTIONS.

[13080].—CHIMNEY-BREAST.—A 9-in. brick wall and chimney-breasts, as sketch, has to be carried over a passage. It is proposed to carry the wall between the chimney-slacks on reinforced concrete

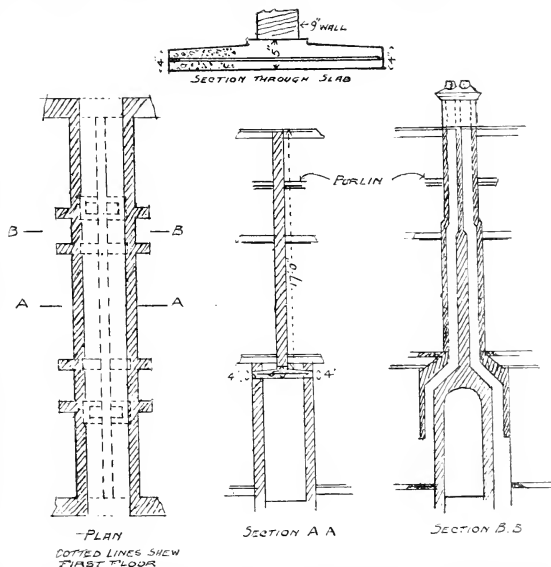
What would your practical recommendation be? Forcing has been recommended, but my wife does not wish to go to the expense of that if it can be avoided. My own opinion is, as time goes on, this roof should get more watertight, as the water will harden and vegetate, and there has been no complaint about the rain getting in. Should this be known if any of your readers agree with my theory, of course, one knows this roof should have been boarded and felted before the tiles and battens were fixed; but, to save expense, these were omitted.—Inquirer.

[12983].—CEMENT-CONCRETE BASE FOR R.S. STATION IN WRONG POSITION.—The 4-in. R.S. stanchion, 13ft. 6-in. high, carrying guide-plate with 40 tons load, must stand over extension—A. E. C.



edge of cement-concrete foundation already had on good bottom. This foundation should have been carried lit. further under the existing old wall, but wind and circumstances do not allow. What modification of usual R.S. grillage, or of base of the R.S. stanchion, is required in order to guard against cracking of the edge of the concrete (3-4) foundation?—A. E. C.

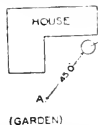
[12983].—RAISING WATER.—Will you be good enough to tell me if it is possible to raise the water



Jabs, as sketch, the chimney-stacks being arched over by a semicircular arch across passage, without any reinforced slabs. The slabs to be 3ft. 9-in. by 2ft. 3-in., composed of three of clean gravel to one of cement (there is sufficient fine stuff in the gravel for binding purposes), each slab reinforced with 2 in. 2 in. angle-iron and wire-netting (a) Are the slabs strong enough to take the brick wall and as much of roof as the parlin bring on it (say 3 cwt. on each slab)? (b) Can a better way be suggested, either with regard to carrying the wall or chimney-stacks?—K.

[1306].—TILED ROOF.—I have recently erected a house covered with a tiled roof. The pitch is 29deg., and the tiles are thick hand-made sand-faced tiles, laid to 4-in. gauge, but not boarded nor felted underneath. The eaves are shaped to a "bell-cast" form, and project over the walls about 8-in., and the six lowermost courses of tiles are bedded in cement. After a heavy snowstorm which occurred a few days ago the roof was found to be leaking very badly (not at the eaves) where exposed to the full force of the gale, and the question is,

by a cheap method from the "w.U." so as to form a water-tight and stream at A, and to run down the garden? The ground is level from the "w.U." to A. The top of the water-surface in the well below the level of the ground is about 5ft. When the



water gets above the cellar floor of the house, it finds a way into the cellar. I have thought the siphon principle may answer, and thus I shall get rid of the water from the cellar, and at the

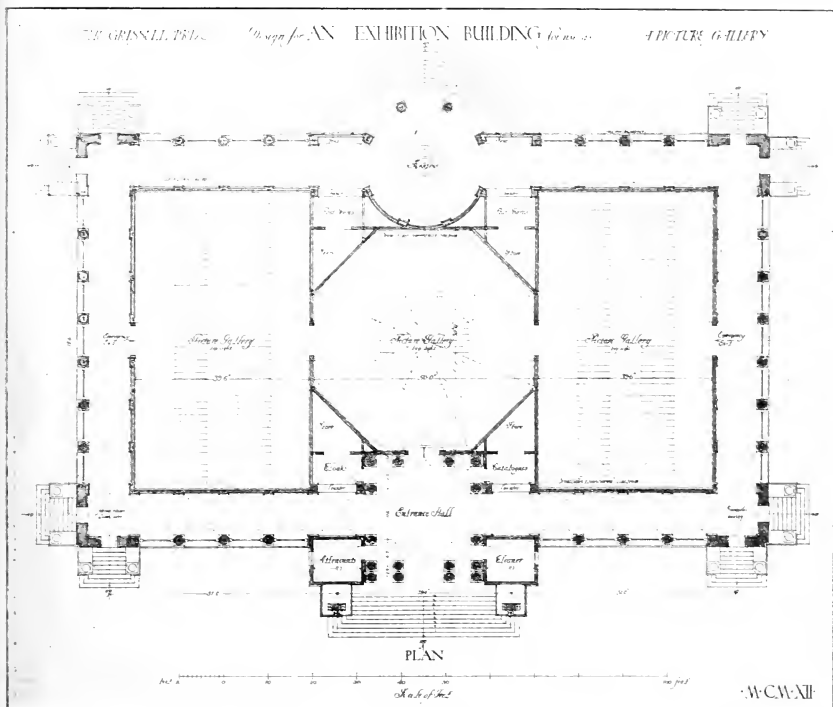
Our Illustrations.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE GRISSELL GOLD MEDAL PRIZE DESIGN FOR AN ISOLATED EXHIBITION BUILDING FOR PICTURE GALLERIES

In this design, the area stated in the Conditions, about 130ft. by 50ft., has been laid out so as to give the maximum wall space for pictures. The galleries are surrounded by an open loggia, forming a lower order; the entrance pavilion is placed on one of

sectional detail of the cross section of the Colonnaded Verandahs, and on this same drawing is a stress diagram and detail of the roof trusses. The methods adopted for the construction are thus clearly shown. The plan and general elevation accompanying these notes illustrate the scheme as a whole. Of that we spoke with commendation in our leading article in last week's BUILDING NEWS, when we reviewed the exhibition of students' work now on view in the Galleries of the R.I.B.A., 9, Conduit street, Mr. Thomas Bradnock, of Merton road, Wimbledon, the author of this design, was awarded the Grissell Gold Medal and ten guineas, as we have previously stated with approval.

we have many stated to be the finest of the designs in the competition. The Minister is a man of great taste, and the greatest merit of the design is that it is contrasted with many of our schools, and perhaps, comparative excellence may be found for various reasons, that the work is most commendably deserves. The transepts and eastern part of Beverley Minster were built between 1225 and 1245. This is an always high rank as one of the finest pieces of Early English architecture in this country, both as regards proportion and purity of detail. Wells, Pugin said of the eastern transepts that he had not lived in vain when he had seen their beauty. The treatment of the



ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE GRISSELL GOLD MEDAL PRIZE DESIGN, 1912.

By Mr. THOMAS BRADNOCK.

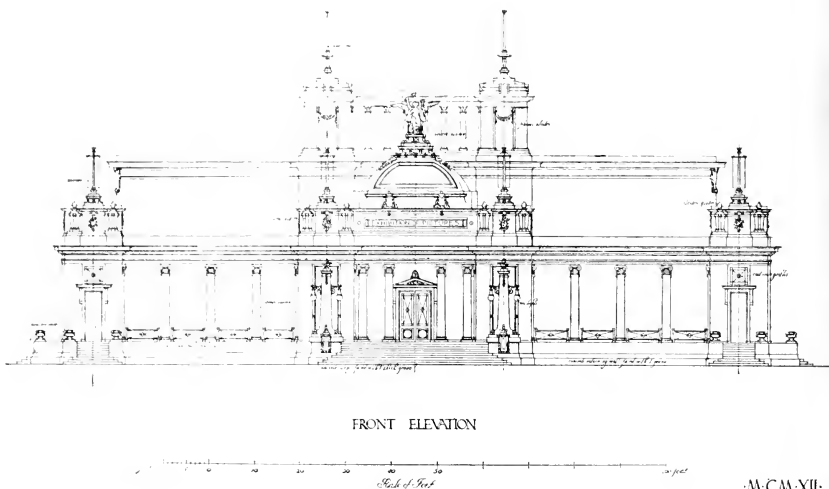
the long sides, balanced at the back with a circular-domed pavilion, both placed axially with the loggias, to give uninterrupted vistas the whole length of the building. The walls of the galleries are carried up to form an attic and to mask the corrugated iron roofs on each side small pavilions, which terminate in colonnades, and so placed as to group with the domes in the front and rear of the building. The method of construction adopted is that of a light steel framing filled in with concrete slabs 4in. thick, and plastered both sides; the columns, cornices, and decorative work being in fibrous plaster, and screwed to the concrete blocks or wired to steel framing. We give a double-page reproduction of the detail of the Entrance Pavilion, and a single-page

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE PUGIN TRAVELING STUDENTSHIP PRIZE DRAWINGS, 1912. BY MR. JAMES MACGREGOR.

This double-page plate is reproduced from the sheet No. 1 of the four drawings submitted by Mr. James Macgregor, of Dunfermline, Fife, and for which this Studentship of £40 was awarded him, as mentioned in our review of the Students' Prize Competitions printed in the BUILDING NEWS last week. We shall give some more of his excellent examples of measured work and architectural draughtsmanship, of which we have already spoken with warm approval. Mr. Macgregor has sent us some notes, which

triforium, with its double arcade, is particularly fine. The vaulting shaft, though it stops short of the floor line, is brought down to the spandrel of the main arcade, and aids in giving the building that effect of great height which is one of its most pronounced characteristics, as contrasted with many of our cathedrals in England, which are wanting in respect to height. The exterior parapets were added when the nave was built, between 1320-1349. The roofs are modern. The doorway illustrated on the right hand lower corner of the plate belongs also to this same south transept. It is a very successful piece of design, of excellent detail. The mouldings are most refined. The dog tooth enrichments are except on the small, and, all being undercut, are to be

THE GRISSELL PRIZE Design for AN EXHIBITION BUILDING for use as a PICTURE GALLERY



FRONT ELEVATION

MCMXII

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE GRISSELL GOLD MEDAL PRIZE DESIGN, 1912.

By Mr. THOMAS BRADDOCK.

described as a marvel of ingenuity. The tower of Bishop's Lydiard Church, situate about five miles north west of Taunton, is one of the series generally accounted most typical of many of the best towers found in the county of Somerset. The upper windows are filled with perforated tracery, instead of the usual sloping louvre boards. The tower windows of the churches of St. Abbs and Hildesheim are also filled in this manner. Much of the successful treatment of these beautiful West country towers is due to the care and attention which their designers paid to their fenestration, as well as to the dignified simplicity of their general contour, no matter how rich some of their belfry stages and crowning features may be. The Cross, which stands in the same churchyard at Bishop's Lydiard, is one of the best examples of its kind in the West of England. On the eastern side is a small niche with the figure of a saint still *in situ*, but much defaced. Other churchyard crosses may be seen at Newark, Notts; Springston, Somerset; and at St. Mawgan in Poldar, Cornwall.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE PRIZE DESIGN: CENTRAL COURTYARD OF A ROYAL EXCHANGE.

Mr. Louis de Soissons, the winner of this prize, sends us the following particulars of his very capable scheme, of which we publish the principal elevational section, detail, with general plan, and the two plans of the courtyard proper, which constitutes the subject of his design. "The two dominant ideas which have influenced my design are simplicity and dignity. Simplicity, because a royal exchange is a place where affairs of national, and even international, importance are transacted, and in no way is it associated with the glare of amusement. It must have repose and dignity. To obtain this effect, it is essential that the design should assume a monumental scale. From the 'monu-

mental' is but too easy a step to the error of the 'gigantic.' The medium exists in the 'grand manner' of tradition, and it is this spirit of moderation I have endeavoured to render the work in so far as it is possible with the necessities of modern building. This medium is too often forgotten in contemporary work. Men, realising the ingenuity of adapting the 'gigantic' to modern conditions, are too apt to fall to the level of the insignificant, and apparently forget the happy medium created by such masters as Inigo Jones, Wren, and even Vanbrugh in England, besides Delorme, Penault, and Mansard in France. It is this tradition in design which has given its direction to my study of the problem."

LOUIS DE SOISSONS.

* * In our description last week, on p. 143, of St. Luke's Church, Grimsby, by the accidental loss of a line of line, matter on its way from the galley to the page, the apparently idiotic statement was made that "the clerk of the works was Mr. L. Nicholson, Bart." The ninth, and missing line, would have made the finish read correctly, "The clerk of the works was Mr. L. E. Gover, and the architect Sir Charles Nicholson, Bart. Messrs. Nicholson and Corlette)." We apologise to all concerned, and thank Mr. Gover for drawing our attention to the error.

At Billerica a Local Government Board inquiry has been held into an application of the rural district council to be permitted to borrow £1,375 for the purchase of land in the parish of Great Burstead, and the erection thereon of working class dwellings.

The Metchborough Town Council have decided to adopt the Halls and Washhouses Act, and have agreed that the buildings and all other charges in connection with the baths shall not exceed £4500. A committee was requested to report to the council as to the prices of suitable land for a site.

COMPETITIONS.

COMPETITIONS FOR TOWN PLANNING, GARDEN SUBURB SCHEMES, ETC.—Acting on the recommendation of the R.I.B.A. Competitions Committee, the Council of the Royal Institute give notice that in the case of competitions for town planning, garden suburb schemes, and kindred enterprises, the competition amongst architects should be confined to the design, and architects should not undertake the erection of the buildings they have designed for competition purposes. Further, the Council are of opinion that members of the Royal Institute should not act as assessors to, or otherwise countenance a competition unless it is limited to the design only.

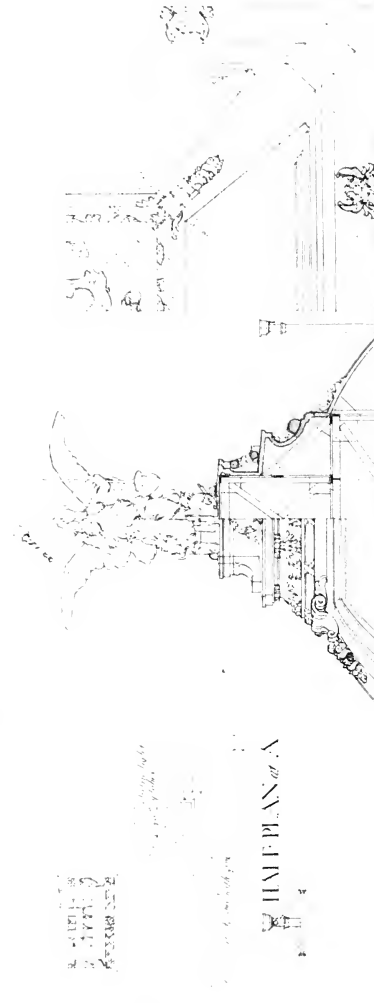
SALFORD. The plans of Messrs. Topham and Adshad and Mr. Thomas J. Bushell, both of Manchester, have been placed first and second respectively by the assessor, Mr. Paul Ogden, of that city, in connection with the competitive designs submitted to the Salford Board of Guardians for the reconstruction of the union offices.

To trace the ground plan of the Augustinian monastery which stood on the site, excavations are being made in the Church of St. Bartholomew the Great, West Smithfield. The belief of the authorities has so far been verified, and part of a Medieval wall has been disclosed in a tunnel driven beneath the Lady-chapel.

The cutting and wearing power of a stream of blown sand, long since utilised for various purposes, has been employed for testing building materials at the Gross Lichterfelde Institute in Germany. Granite, pine-wood, linoleum, and other substances used in the construction and furnishing of buildings are subjected for about two minutes to the action of a blast of fine quartz sand under a pressure of two atmospheres. The results show the resisting powers of the substances tested to the effects of wear. This form of test is applicable to road-building materials.

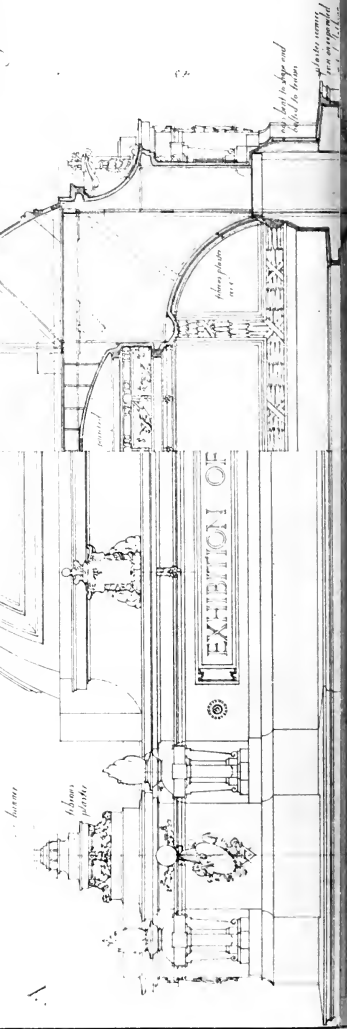


THE CRISSELL TRICE COMPANY'S EXHIBITION BUILDING



HALF PLAN at A

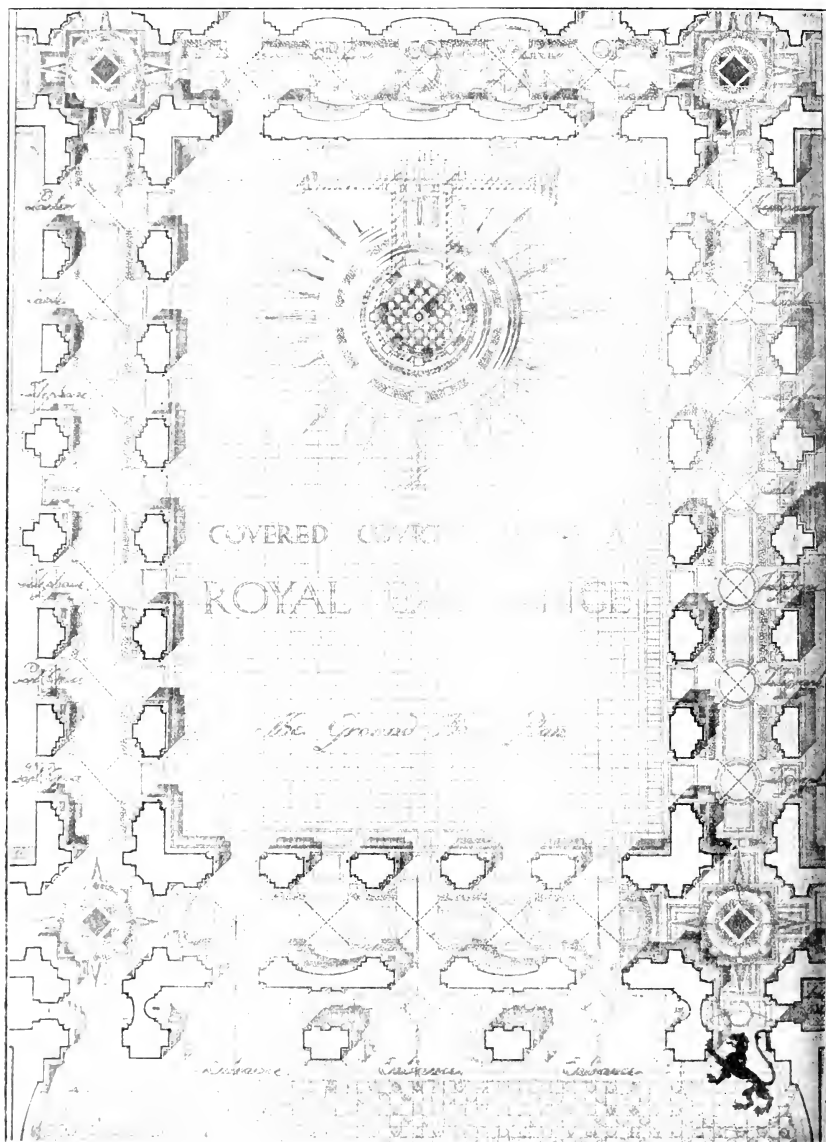
QUARTER PLAN of DOME



EXHIBITION OF

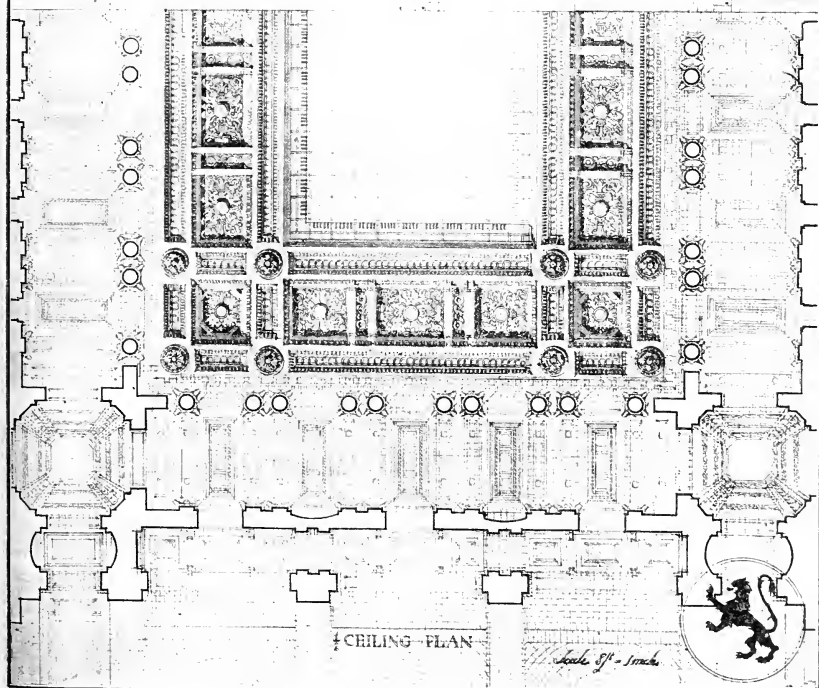
up, but to be and
applied to them.

plates coming
from a building



THE COVERED COURTYARD OF A ROYAL EXCHANGE

J. ROYAL



Reduced from the 1/4 inch scale drawing.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE TITE PRIZE DESIGN, 1912.
By Mr. LOUIS DE SOISSONS.

LEGAL INTELLIGENCE.

A GREAT MARLBOROUGH STREET ARBITRATION.—An arbitration was held on Monday at the Surveyors' Institute by Mr. J. H. Oakley for the division of land in Great Marlborough-street and Ranelagh-street, which the Receiver of the Metropolitan Police Force has acquired under the Metropolitan Police Act, 1886, for the extension of Marlborough-street. The case was heard by Mr. H. J. Elwes, who was represented by Mr. Balfour Browne, K.C., and Mr. E. Macassay. Mr. G. M. Freeman, K.C., and Mr. W. J. Jeeves appeared for the Receiver of Police. Mr. Balfour Browne's case was that the value of the land in Great Marlborough-street and Ranelagh-street was £15,000, and the land being worth £5 a foot. The site had an agreed area of 4,192 ft. it was now set on a lease of 35 years from March, 1900, at a rental of £206, and the value of the lease they put down at £3,298, at a 15-year purchase. Mr. H. J. Elwes, the arbitrator, of Cockspur-street, said that he knew no district where property was increasing so rapidly in value; in fact, there was a daily increase. Recent street and Oxford-street firms were obliged to pay as much additional rent as the value of the property. These people, while they got goods "house" were obliged to have their premises near to those great emporiums which were their principal customers. Mr. James Bydon, estate agent, gave evidence that the value of the land in Great Marlborough-street had sold for as much as 56 s. 6d. per foot. On behalf of the Police Receiver, Mr. A. J. Ryde, of Ryde and Son, surveyors, said he would accept a 34 per foot valuation for the part of the frontage and a 24 per foot valuation for the remainder. His valuation was £8,502. The award will be published later.

BUILDER AND BUILDING OWNER'S DISPUTE.—On Tuesday, in a Divisional Court of King's Bench before Mr. Justice Hamilton and Mr. Justice Lush, the case of Elms v. Hemsted was decided. Mr. Cecil Walsh appeared for the plaintiff, and Mr. Bartley Dennis for the defendant. Mr. Cecil Walsh said he appeared for the plaintiff in this case, and he asked for an extension of time for an appeal to set aside the award of an arbitrator, Mr. W. H. J. Elms, an architect. The action arose out of a contract by the plaintiff to build a house for Mr. Hemsted at Kenbury, Berks. There was a dispute as to certain extras, and a claim was made by the plaintiff for £169. The matter was referred to an arbitrator, Mr. W. H. J. Elms, an award was made, and the last day for moving an appeal was December 21. The award was contained in a letter dated July 18, and was in these terms: "No further sum is due to the King for the work. There is really a sum due to Mr. Hemsted." He submitted that such an award was bad on the face of it. Apart from that point, the plaintiff had delivered accounts showing £169 due to him for work done under the contract, and the defendant had not paid. The arbitrator had made a counter-claim, on which the arbitrator had made an award, and on which the plaintiff had never been heard at all. In defendant's counter-claim there was a sum of £77, of which the arbitrator had made no mention. He admitted the plaintiff ought to have moved before, but there had been constant correspondence, and his agent could not get a correct copy of contract nor yet the details of the award. He submitted that the arbitrator was wrong in the "extras" were ordered, and also that there was a penalty clause if the work was not completed by a certain date. Mr. Bartley Dennis, for the defendant, opposed the motion for an extension of time, and asked for the contract price of the house. Their lordships held that there was some merit in the application, and extended the time of appealing to set aside the award of the arbitrator for eight days.

MUSWELL HILL.—On Tuesday, Jan. 30, a Divisional Court of the King's Bench Division, composed of Justices Hamlyn and Lush, had before them the case of Mr. Cable v. Lewis, which came before the Court in the form of a motion. It was a claim for an order of payment by Master Macdonnell. Mr. David White, appearing with Mr. Williams for Mr. Cable, stated that in this case Mr. Cable was suing £38 19s. 1d., the price of some wrought-iron pattern window casements, which he alleged were made by the defendant. The purpose of the suit was being used in buildings the defendant was erecting at Muswell Hill. The defendant, Mr. Lewis, said counsel was an architect and surveyor, and he had in his employ a man named Cable, who was a friend of his. Cable had certain conversations passed between Mr. Curzon and Mr. Cable, and on account of these Mr. Cable called at the premises of Mr. Lewis's firm, and saw Mr. Lewis, and pointed out to him the advantage of the wrought-iron casements. Mr. Lewis said he would

send them in these particular buildings, and subsequently Mr. Lewis, in communications to Mr. Flowerdew, the builder, made reference to the casements. In the specifications (counsel continued), these particular casements were mentioned, and the builder was instructed to use Mr. Cable's casements. Mr. Cable went on to say that the man Flowerdew was a "man of straw." A large amount of property was accumulating upon these works, and in February, 1906, upon the builder failing, Mr. Lewis, who was architect and owner of the premises, came and took the property, and his client (Mr. Cable) was unable to recover anything. He would submit that under the case of "Hobbs v. Turner," which was on "all fours," with the present case, Mr. Cable was entitled to recover from Mr. Lewis. Replying to Mr. Justice Hamilton, counsel stated that he submitted the goods were delivered to Flowerdew after an order had been given by the defendant. The Master, it was true, had found that in fact Mr. Lewis did not give the order, and was not liable, but plaintiff appealed on the point of law. The order was given (he contended) by Mr. Lewis by word of mouth. Mr. Justice Hamilton: The Master believed Mr. Lewis's counsel, and the correspondence showed that it was wrong. Mr. Justice Hamilton said he noticed from the documents before him that the Master had said he found as a fact that the order for the casements was not given by the defendant. He was not satisfied that the Master, that in this case the building owner, Mr. Lewis, was the architect, and clearly he had taken possession. He added that none of the people who had supplied goods for the seven houses had been paid a penny. Mr. Justice Lush remarked that whether Mr. Lewis did give the order or not was purely a question of fact.

Counsel said that he asked the Court to give Mr. Cable judgment or leave for a new trial. He mentioned that originally there was application for judgment under Mr. Cable's specifications, from which it appeared that the order was referred to the Master. It ought never to have been referred to the Master. Mr. J. R. Macdonnell (for the respondent) stated that the reference was by consent. Mr. White further argued his case, and handed in his specifications, from which it appeared that the order was referred to the Master. Mr. Cable appeared, and a reference to his patent casements. Concluding, he submitted that Mr. Lewis, as the builder, gave the order to himself, as architect, and as owner of the premises. Mr. Cable. Mr. Justice Lush remarked that Master Macdonnell had found against Mr. Cable on the facts, and it seemed to him that the case that counsel had cited had nothing to do with it. Mr. White replied that the Master, on the order being given by Mr. Cable, he would ask for leave to appeal from their decision, as this was a most important matter so far as builders' merchants were concerned, with regard to the supplying of materials. Mr. Macdonnell, who had been hearing an argument by Mr. Macdonnell, Mr. Justice Hamilton delivered judgment. His lordship remarked that the price of the goods was under £40, and an issue having been raised that appeared to be one of fact, was referred to Master Macdonnell, who, on hearing the evidence, decided in favour of the defendant. The plaintiff had moved to set the judgment aside, and for judgment to be entered for the plaintiff on the grounds (1) that the Master had made an error of law in holding that the plaintiff had not made out his case, and (2) that he was wrong in law in not holding that the order for the goods was given by the defendant as the real principal, and not the architect, and on the ground against the defendant because there was some body—a man named Flowerdew—who had pledged defendant's credit to the plaintiff, and established privacy of contract between plaintiff and the defendant, and did not submit to parties to the contract. His lordship, in accord with the evidence actually given before the Master, because although the plaintiff said he had had an order for the goods given direct by Mr. Lewis, the defendant had sworn that no such order was given, and the Master believed the defendant and not the plaintiff. The case that had been quoted for the appellant did not apply, and the conclusion that the Court had arrived at was that they could not interfere with the Master's decision. Mr. White said the Master therefore be dismissed with costs. Mr. White raised the question of leave to appeal against this decision, and Mr. Justice Hamilton said: We do not give leave; you must take your own course.

SURVEYING CLAIM SETTLED.—In the Official Referee's Court, before Mr. M. Muir Mackenzie, last week, Mr. Herbert L. Tibbs, counsel, intimated that the Great Western Land Company, Ltd., a claim for fees had been settled. Mr.

Tibbs asked the Referee, in whose warned list the case had figured, to direct that judgment be entered for plaintiffs for £515, and the costs to be taxed. The learned Official Referee acquiesced. It was understood that the claim had partly reference to work by the plaintiffs at Kithurst Heights, near Greentford, Middlesex.

MALLOW ARBITRATION.—Mr. C. C. Hutchinson, who sat as sole arbitrator in the matter of the transference of the Mallow Gasworks to the local district council, has fixed his price to be paid by the latter at the annual contribution to work by at £200,000 cubic meter. The experts for the company, Messrs. F. Jones and H. Woodall, valued the undertaking at £10,824 and £10,603 respectively, while Mr. W. Newbigging, expert for the council, valued it at £4,667. Mr. Jones gave the structural value at £6,000, and Mr. Woodall at £6,495, while Mr. Newbigging valued the structure at £5,848.

CHARGES AGAINST AN ARCHITECT.—At the Central Criminal Court on Wednesday, before Judge Lumley Smith, Cyril Frederick William Fryer, 44, architect, was indicted for obtaining credit for more than £20 without disclosing the fact that he was an undischarged bankrupt, and, further, for obtaining from Annie Margaret Emerson a motor-car, and from Margaret Amy Bartlett £46, with intent to defraud. Mr. Lylester, who, with Mr. R. D. Muir, represented the prosecutors, the Brompton Motor Company, Ltd., of Brompton-road, said that the prisoner was introduced to the Arsenal, the director of the company, in June last year. Eventually the prisoner obtained a Mercedes motor-car from the company on the representation that he had the Wellington House Hotel, Buckingham Gate. He proposed to pay for the car partly by a cash down payment, and the balance to be shared in three instalments in the hotel company. He said he was the architect of the hotel and held 6,000 shares. After the car was delivered the bill was not met, and judgment obtained against the accused was not satisfied. Then the prisoner refused to come to the Arsenal to meet the bill. The prisoner, on oath, said he was principal of the firm of Palgrave and Co., of Victoria-street, Westminster, and they or their nominees held from him at one time between 7,000 or 8,000 shares in the Wellington House Hotel company. He said he wanted to take 25,000 shares for £200,000. He said he wanted the motor-car for his son, and agreed to pay £100 deposit for it, and the balance out of the second instalment under the French contract. It was untrue to suggest that he did not possess the 7,000 shares which he had given as security for the bill. Replying to the Judge, the prisoner said he did not receive the second instalment from the French bank, and he was suing them for the money. In his view, the bill should not have been presented, as he only had form to fill. The hearing was adjourned.

A memorial to Principal Marshall Lang was unveiled in King's College Chapel, Aberdeen, on Friday. It consists of a bronze tablet with a bust of the late principal in low relief, and an inscription. The sculptor is Mr. John Tweed.

The death took place at Wakefield on Friday of Mr. William Judge, New Wells House, an alderman in the Wakefield City Council, and also a prominent member of the Wakefield and District Trades Union's Federation. He was sixty-six years of age.

At the Borough Polytechnic Institute, S.E., the Council have inaugurated a special school for technical education in the ironmongery and hardware trades. It is proposed to establish a course of instruction of two or three years, which will cover not only shop and general salesmanship, but also the installation of heating, ventilating and air conditioning systems, gas and electric lighting, as well as the general commercial education of students. Substantial financial support is already assured to the scheme, and the Ironmongers' Company and the London Metal Corporation are to be asked to give their support to the movement.

The sub-committee of the improvement committee of the Manchester Corporation met on Friday at the town hall representatives of the estate agents and surveyors of the city, and conferred with them on the town hall plan, and the balance of the year. The town clerk (Mr. T. Hudson) and the city surveyor (Mr. T. de Courcy Meade) were present. Representatives of the Stockport Corporation also attended and discussed proposals as to the town hall and the Manchester area with Stockport. The proceedings were of a preliminary order, not much being done beyond exchanging views or hearing suggestions.

WATER SUPPLY AND SANITARY MATTERS.

WATER SUPPLY IN RURAL DISTRICTS.

A conference on the question of the water supply of rural districts was held at the Guildhall, Cambridge, on Saturday afternoon, under the presidency of Mr. George Fordham, chairman of the Cambs County Council. The chairman said that, whilst most towns had settled the question of their water supply, it was only here and there that this had been done in rural districts. Pro that this had been done in rural districts would have to face, under legislative pressure, the problem of providing adequate water supplies, and he advised them to take advantage of the present moment, when they could do so voluntarily. Professor Kenwood, medical officer for Bedfordshire, read a paper on "Village Water Supplies." He insisted that it should be the chief concern of the sanitary authority to provide and maintain a suitable water supply. Public health in its fullest sense was something at the lowest level in villages where the so-called vital statistics might seem by superficial thinkers to justify the crude and hasty deduction that all was well. It was comparatively seldom that village wells furnished water supply all the year round which would be considered suitable in quality and quantity for an urban community, and it was usually polluted by sewage impurities. The sanitary authority, however, and its difficulty was almost entirely one of finding the necessary means in districts where that commodity was scarce. He suggested co-operation between villages and the storage of rain-water in storage reservoirs. William Sims, Woodstock, in the course of the discussion, said he looked forward to a time when, if they were not very careful, their sewage disposal would be so bad that a very great number of their water supplies would be impracticable for domestic use. He was providing water supplies in thinly-populated districts was urged by several of the speakers.

A new school of art has been built at Canterbury. Mr. W. J. Jennings, F.R.I.B.A., of that city, was the architect, and the outlay was £2,600.

The East Riding County Council decided on Monday to reconstruct Hull Bridge, which was alleged to be the most dangerous one in England. Messrs. John Sims, Woodstock, and Partners were adopted, the estimated cost of reconstruction being £8,600.

The death is announced of Mr. John Martin, J.P., of Galloway House, Galloway Park, Belfast, one of the principals in the well-known firm of Messrs. H. and J. Martin, Ltd., builders and contractors, Belfast, and Leinster Works, Dublin. The deceased was associated with many of the improvements which changed the aspect of Belfast completely within the past twenty or thirty years. His death has been one of the most important local undertakings, including the construction of the new city hall.

The King Edward Statue Committee of the Aberdeen Town Council went over various sites suggested for the statue along with Mr. Alfred Drury, A.R.A., the sculptor of the accepted model for the statue, on Monday. It was decided to erect the statue on a site where the statue be placed on the site now occupied by the Burns statue, and that the latter be placed in the corner of the ground at Union-terrace, not far from the Wallace statue. There were present Mr. J. G. Macdonald, Town Clerk, Prince Albert, King Edward, Burns, and Wallace.

The highways and works committee of the Southport Corporation have appointed Mr. A. E. Jackson, chief engineering assistant, Manchester, to be borough engineer and surveyor of Southport, at a salary of £500 a year, rising to a maximum of £800. The committee interviewed eleven candidates, who had been selected out of 123. The services of the present surveyor (Mr. P. Hirs) are to be retained, at a salary of £450 a year, until the completion of the sewerage scheme, when he will retire on a pension of £250 a year.

The yearly meeting of the members of the Royal Cambrian Academy was held on Saturday, at Plas Mawr, Conway. Mr. H. Clarence White was re-elected president, thanked for his services, and expressed his appreciation of the honours on attaining that day his eighty-fourth year. He suitably responded. Mr. Culbert C. Grundy was reappointed vice-president. Mr. F. W. Longshaw, hon. treasurer, Mr. W. J. Slater, hon. secretary, and Mr. F. F. Perrin, auditor, with Mr. Owen Rowland, Messrs. J. Cassidy (sculptor), N. Prescott Davies, and Alfred W. Strutt were elected to full membership, and Messrs. A. A. Berrie, William Ezington, and Tom Mostyn were elected associates.

Our Office Table.

The London County Council, at their meeting on Tuesday, received a report from their Improvement Committee recommending that the freehold of the eastern horn of the crescent site between the Strand, Aldwych, and Melbourne-place be sold to the Commonwealth of Australia for £379,756. The committee stated that the land has a total area of about 24,236 square feet, and total frontages of about 633ft. to the Strand, Aldwych, and Melbourne-places. This area includes the site occupied by the offices of the Victorian Government, and leased to that Government at a ground-rent of £874 a year. The whole of the site, with the exception of the portion occupied by the Victorian Government, will be used for the erection of the Commonwealth buildings. The committee expressed confidence that the acceptance of the offer would facilitate the development of the remainder of the Council's valuable surplus land at this site. If the offer were agreed to, the proposal, the financial position of the whole improvement would, in the opinion of the committee, be considerably benefited. The Finance Committee reported that the sum offered for the site was approximately equivalent to the amount at which the property was valued for the purposes of the returns of surplus lands presented to the Treasury, and they concurred in the proposed sale. A long debate took place upon the general principle of retaining or disposing of the Council's freeholds, but eventually the Improvement Committee's report was unanimously adopted.

At the same meeting of the Council the Building Acts Committee reported that they had under consideration the question of the steps to be taken with regard to the unoccupied premises Nos. 52 and 54, Queensland-road, Islington, which have been certified by the district surveyor to be dangerous. In these cases statutory notices were served on the owner to remove the dangerous structures, but no action was taken by him, the structures were shored up by the Council's contractors, and summonses issued against the owner. At the hearing of the case at the North London Police Court, the magistrate dismissed the summons, with costs against the Council, on the grounds that, as there was a garden between the houses and the street, the only persons liable to injury would be trespassers, and that, as the structures had been shored, they were not dangerous. The Council then, in the meaning of Part IX. of the London Building Act, 1894. The committee were strongly of opinion that every effort should be made to reverse this decision, and had therefore asked the magistrate to state a case for the decision of the High Court. They recommended that the solicitor take steps to obtain the decision of the High Court in the matter of the dismissal by the magistrate of the summonses taken out by the Council in respect of the dangerous structures Nos. 52 and 54, Queensland-road, Islington. This recommendation was also adopted.

The Parliamentary Committee reported that the London County Council (Tramways and Improvements) Bill of last session as passed authorises the construction of new tramways as follows:—Additional double line and junctions on Dog Kennel-hill between Grove-hill-road and Constance-road. Double connecting line between the existing lines in London-road and authorised lines in Park-road via Devonshire-road and Walden-road, Lewisham. Double line between Brockle-rise, Forest-hill, and Rushey-green, Catford via Stanstead-road, Catford-hill and Catford-road. The Bill, as passed, also contains powers for the reconstruction for electrical traction of the tramways from Kingsland-road to Mare-street via Dalston-lane and Graham-road. Powers are also contained enabling the Council to acquire lands and to effect various street widenings in connection with the proposed new tramways and tramway reconstruction. The effort on the part of two authorities in London to force

sewers into rating assessment appears, by a report of the Local Government Committee, to have been abandoned. Faced with the prospect of an appeal to Quarter Sessions by the County Council, the Greenwich Union Assessment Committee has deleted from the lists all the entries relating to the Council's and the borough council's sewers, and the Woolwich Union Assessment Committee decided to delete the Council's sewers and not to insert therein the local sewers.

In commenting upon the transfer of the Capital of India to Delhi, *Indian Engineer* remarks that the public both in Great Britain and on the Continent, is at the present time obsessed with the idea of town-planning, and not without good reason. Our contemporary points out that undue haste in building the new capital at Delhi would result in an overcrowding that would be far more disastrous than in the healthier climates of western countries. The announced intention of utilising the temporary Durbar as a temporary installation for the new city is deprecated, especially regarding the roads. Our contemporary urges that competitive plans should be invited from architects, as is being done by the Australian Commonwealth in the parallel case of Yass Canberra; but we trust that the mistakes that have been made in arranging the conditions for the latter competition will be avoided. As the seat of government, Delhi is destined to grow in time into the greatest and most imposing city in the East, and should be planned accordingly, and not be displaced by those who lay out the scheme, it will be a source of keen and unavailing regret for all time.

The Home Office memorandum on steam boilers prepared by Mr. W. Buchan, one of the Government factory inspectors, and published at Is. 3d., aims at acquainting owners and users with the dangers and troubles likely to arise in boilers and vessels using steam under pressure. Appended to it is a useful summary of the law relating to steam boilers. The official character of the memorandum should not give an impression upon those owners and users, especially in the agricultural districts—who avoid the expert assistance of the boiler insurance companies on the ground that the latter are not unbiased advisers. Mr. Buchan gives a clear, succinct, and, having regard to limitations of his space, complete discussion of the leading boiler troubles. He offers a qualified acceptance of scale-softening compositions for use inside boilers, and shows the risks involved to the seams in turning cold water into an overheated boiler. Economisers, boiler mountings, bakers' covers, and other steam vessels are dealt with in the memorandum, and there are self-explanatory drawings illustrating good and bad practice.

The principal undertaking this year of the Egypt Exploration Fund will be the excavation of Osireion, the great subterranean building at Abydos, connected with the Temple of Seti. The excavation of the Osireion was begun nine years ago under the supervision of Professor Petrie, but the work was discontinued, and it is now proposed to prosecute it to its conclusion. The building is a subterranean temple. Its stone walls are covered with sculpture and hieroglyphs, dealing with the adventures of the soul in the underworld after death. So far as excavated the Osireion consists of a broad way descending to a great hall, from which opens a chamber and a second hall leading towards the temple.

Dr. Theodor Wiegand, the director of the Berlin collections of antiquities, has described before the Prussian Academy of Sciences the results of the recent German excavations at Miletus and on the site of the neighbouring Temple of Apollo at Branchidae. A building of Corinthian work, bearing a dedicatory description to Laodike, the wife of Antiochus II., has been brought to light in the south market. The clearing of the Serapeion has been completed, and the fragments of the entablature and pediment of the entrance hall of six columns can be pieced together.

North of the Serapion and west of a street which continued the line of the Sacred Way, the excavators have traced a rectangular peristyle court with an exedra and a gymnasium to the south of it. On the neighbouring site of Branchidae five more seated archaic figures have been discovered on the line of the Sacred Way; others, from Branchidae, will be remembered, were long on exhibition in the Archæic Room at the British Museum. The eastern half of the great Temple of Apollo has been completely cleared. The pavement is complete, and the columns are preserved to the height of several feet. The back wall of the Pronaos is standing to a height of 21ft. 8in. the opening for the door being flanked by monoliths below.

A novel and apparently successful method of protecting gas pipes from the effects of electrolysis has been adopted by a gas company in St. Louis, Missouri. The wrought-iron service pipes, which are less subject to electrolysis than the cast-iron pipes, are first coated with a tar and pitch mixture, heated and thinned to a fluid condition, and over this is wrapped a paper ribbon, 4in. wide, with overlapping edges. Another coating of tar and pitch is applied, and a further paper wrapping, until four successive layers of each material have been provided. It is found that the coating becomes extremely hard when cool, and is not liable to damage with ordinary care. Pipes so treated and placed in the earth under conditions highly favourable to electrolytic action have been examined after two years, and have been found to be practically as good as new, while unprotected piping under similar circumstances has become so pitted as to be virtually useless. The method described was adopted after a long series of experiments, and it is believed that the tar and paper wrapping will at least double the effective life of the pipe.

A patent has been taken out by Mr. C. Nathan, 85, London Wall, London (Oct. 3, No. 22604), for a plastic composition for resurfacing roads, etc., which consists approximately of 7 parts of about 1 or 2in. grade basalt, quartz, rhyolite, granite, or the like, 3 parts sharp sand, 1 part powdered asphaltic limestone containing about 9 per cent. of bitumen, 1 part of Portland cement, gypsum, or other very fine material, and 4 parts of Cuban natural asphalt, all mixed and heated together to form a composition which flows freely from the heating cauldrons.

Viscount Goschen presided at the annual ordinary general meeting of the shareholders of the London County and Westminster Bank, Ltd., held on Thursday week. In moving the adoption of the report, he said that those present at the two previous meetings of the amalgamated bank would remember that he pleaded for patience, as some time would necessarily elapse before the directors could be able to place before the shareholders, in the shape of figures, the full advantages of the amalgamation. That patience had been generously accorded, and he hoped that, from the last year's work they had been able to submit, the shareholders would appreciate the advantages of the amalgamation. He would not even now say the full advantages, because they were always striving for a further increase of business, and did not admit that they had reached the maximum; but he could say that the machinery had now settled down in good working order, and was developing the power they expected. He would remind them of the character of the year through which they had just passed. The trade of the country still moved on satisfactory lines, and showed expanding exports and imports. Money rates had been favourable to trade, moving within narrower limits than in 1910. For the last eleven months of the year, at no time had the English Bank rate fallen over 4 per cent. The average rate for the year had been £3.9s. 6d., against £3 14s. 6d. in 1910. The average market rate of discount was £2 18s. 5d., against £3 3s. 3d. in 1910, and the average deposit rate was £1 19s. 6d., against £2 15s. 6d. leaving a margin of profit of 18s. 11d. the last year, against 18s. 9d. for the previous year.

Having referred to other aspects of the money market, he said that agriculturists, among whom the bank had a large number of supporters, had had a fair year. Their fortune had been good in parts, and only moderate in other parts. The situation abroad during the summer and autumn last year was one of considerable anxiety to bankers, and the disturbed state of the political atmosphere called for extreme caution in financing commitments abroad. Generally, he said, the year that had just passed bore a striking similarity to that of 1910. They had now, as then, a record year, favourable to bankers—a year in which they had been able to employ their money remuneratively; but once again circumstances beyond their control had arisen which had prevented them from enjoying the results of the full, as it had been necessary for them to make provision for depreciation in securities. Last year Consols touched 78½, the lowest price since 1847—and this year they showed an even worse record, and had been as low as 70½. They were declaring a dividend for the year of 2½ per cent., as he foreshadowed last year that the bank would be able to do. They were paying the dividend subject to Income-tax, and had so arranged the amount distributed that the shareholders would not be losers by the deduction of Income-tax at the present rate. As to the future, trade promised to be good, and money rates, without being onerous to trade, should be fairly remunerative to bankers; but much must depend upon the peaceful issue of trouble abroad and labour disputes at home.

South Australians justifiably take pride in the fact that Adelaide, their capital city, and many of the large and small towns in the country districts are exceedingly well planted with ornamental trees. The State was the first of the Australian group to establish State forests, and, as population has increased, further areas of land in various districts have been set apart for the planting of trees. This far-seeing policy has now resulted in successive Governments having been enabled to continue the policy, established twenty-nine years ago, of distributing useful and ornamental trees free of cost, but, in addition, the revenue has been considerably augmented by the sale of timber cut from the State forests. The report of the Conservator of Forests, recently issued, shows that on June 30, 1911, the area of forests in the State was 147,084 acres, and that during the year a total of 466,445 trees were planted. Last year the number of trees given away by the State totalled 322,522, and during the twenty-nine years in which the custom of distributing trees gratis has prevailed, 7,866,251 trees have been given to 39,011 persons.

The premises of the former Mechanics Institute, Paisley, were recently acquired by the corporation, and have been reconstructed at a cost of about £7,000 to serve as a town-hall. The formal reopening took place on Thursday last week.

Mr. W. O. F. Meade King, M.Inst.C.E., one of the Local Government Board inspectors, attended at the Guildhall, Bath, on Wednesday week, for the purchase of holdings of land for an application by the Bath City Council for approval to borrow £1,350 for improvements to the Bath Cattle Market. There was no opposition to the scheme.

In the King's Bench Division on Monday, before Mr. Justice Pickford, Mr. Justice Ayrton, and Mr. Justice Wainwright, an appeal by Margaret from an order of the magistrates that the owner of bathing-huts on the foreshore was not an occupier liable to be rated was allowed, and the case was sent back to the magistrates with a direction to enforce the rates.

Mr. Alexander McKay, contractor, Aberdeen, was found drowned in the Dee on Thursday last week, at Aboyne, where he was carrying out a contract. Mr. McKay, who was between 50 and 60 years of age, in his earlier days represented Scotland in a team of athletes with the American. He carried out a number of contracts for the streets and roads department of the Aberdeen Town Council, and was the owner of property in the east end of the city.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Annual Dinner of A.A. Camera Sketch and Debate Club, Café Monaco, Piccadilly Circus. 7 to 7.30 p.m.
Glasgow Architectural Institution's Society. "A Cistercian Monastery," by James A. Lauchlan. 8 p.m.

MONDAY.—Royal Institute of British Architects. Presentation of Papers to Students. Presentation of Prizes; Criticism of Drawings, by Gerald C. Horsley, F.R.A.A. 8 p.m.
Society of Engineers. Presentation of Prizes. Presidential Address by John Kennedy. 7.30 p.m.

Royal Society of Arts. "Ocean Waves, Sea Breeches, and Sandbanks," Cantor Lecture No. 3, by Dr. Vaughan Cornish. 8 p.m.

Liverpool Architectural Society. "The Old Buildings of Stowonia," by Herbert L. North, A.R., F.R.I.B.A. 8 p.m.

TUESDAY.—Institution of Civil Engineers. "The Water-supply of the Witwatersrand," by Donald Calder Leitch, M.Inst.C.E.; "Investigations Relating to the Yield of a Cuckoo-nest," by J. A. Gitch, F.R.S.A., Burlington House, W. 4 p.m.

WEDNESDAY.—Royal Archaeological Institute. "The Original Drawings for Whitehall Palace, attributed to Inigo Jones," by J. A. Gitch, F.R.S.A., Burlington House, W. 4 p.m.

Institution of Civil Engineers. Students' Visit to the National Physical Laboratory, Experimental Tank, Bushy House, Teddington.

Northern Architectural Association. "Style in Architecture," by P. S. Worthington, M.A., F.R.I.B.A., 7.30 p.m.

Royal Society of Arts. "The Influence of Ocean on Ventilation," by Leonard Hill, F.R.S., and Martin Flack, M.B. 8 p.m.

THURSDAY.—Concrete Institute. Discussion on "The Aesthetic Treatment of Concrete." 8 p.m.

Society of Architects. "Housing," by E. C. P. Monson, F.R.I.B.A., Vice-President, 28, Bedford-square, 8 p.m.

FRIDAY (Feb. 9).—Leicester and Leicestershire Society of Architects. "Roman Rural Domus in the Fourteenth and Fifteenth Centuries," by Beckwith A. Spencer, M.A., 8 p.m.

SATURDAY (Feb. 10).—Clerks of Works Association. Annual Dinner, King's Hall, Holborn Restaurant. 6 p.m.

Mr. J. H. Walters, highway surveyor, has been appointed borough surveyor of Congleton, in succession to Mr. R. Burslem, resigned.

The Chester Infirmary Governors decided on Tuesday to carry out an extensive scheme of renovation and reconstruction of the hospital as memorial to Edward VII., estimated at £200,000, towards which £119,000 has been received.

The Elmington Committee of the Essex County Council have accepted the lowest tender for the erection of the new secondary school at Walthamstow, that from Messrs. Clark and Son, of Cambridge, at £12,303 10s., and that of Messrs. J. S. Hammond and Co., £28,285, for a Council school at Leigh-on-Sea.

At Friday's meeting of the Durham County Council, Mr. G. E. Ashforth, assistant to the county surveyor of the West Riding, was appointed chief engineering assistant to the Durham county surveyor at a salary of £200 a year, rising to £250, with third-class railway fare and reasonable out-of-pocket expenses.

Another serious landslide has taken place on Endeavour Cliff, Weymouth, and has precipitated a considerable portion of the cliff into Portland Harbour. It has resulted in the almost complete obliteration of the popular Underbank Walk, along which 225,000 persons which been laid out at considerable cost by the Weymouth Corporation.

At Friday's meeting of the city council of Bristol the following increases of salary were agreed to: Mr. G. E. Ford, deputy city engineer, £200 to £250; Mr. F. Wilson, city surveyor, £200 to £262 10s.; Mr. J. A. Henderson, district surveyor, £256 to £262 10s.; Mr. F. J. Williams, building surveyor, £200 to £250; and Mr. R. H. Webb, chief clerk, £200 to £250.

The Rossmore Laboratory, which has been equipped as a memorial to the late Sir Henry Rossmore, was opened on Tuesday, and the equipment was formally handed over to the governing body of the Imperial College of Science and Technology and the Royal School of Mines. The laboratory occupies a portion of the new building of the Royal School of Mines, South Kensington, and is 260ft. by 121ft., and it has been installed an ore-reduction plant.

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	Per gallon.
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Superfine Pale Elastic Oak.....	£0 12 0
Fine Extra Hard Elastic Oak.....	£0 14 0
Superfine Hard-drying Oak, for seats of churches.....	£0 14 0
Fine Elastic Varnish.....	£0 12 6
Superfine Pale Elastic Varnish.....	£0 16 0
Fine Pale Maple.....	£0 18 0
Finest Pale Durable Copal.....	£0 18 0
Extra Pale Durable Copal.....	£0 12 6
Best Japan Varnish.....	£0 10 0
Best Black Japan.....	£0 16 0
Black and Mahogany Stain.....	£0 8 0
Brunswick Black.....	£0 10 0
Herin Black.....	£0 16 0
Knitting.....	£0 10 0
French and Brush Polish.....	£0 10 0

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The charge for advertisements for **Situations Vacant** or **Situations Wanted** and **Partnerships**, is ONE SHILLING FOR TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. *All Situations Advertisements must be prepaid.*

Rates for **Trade Advertisements** on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* * * Replies to advertisements can be received at the Office, Edinburgh House, 1, Arundel-street, Strand, W.C., free of charge. If to be forwarded under cover of advertisement an extra charge of sixpence is made. (See Notice at head of "Situations.")

RECEIVED.—F. and B.—C. L. Co.—F. B. and G.—E. W.—W. H. S. and Son.—L. P. S.—A. B.—H. G.—G. R.—J. D. and G.—H. L.—I. F. S.—W. and W. G.—S. and Co.—W. B. and Son.—M. G.—W. and Son.

T. L. A.—Thanks, no.

R. P. J.—You have very little choice.

H. P. H.—No satisfactory reproduction possible, we fear.

MEMPHIS.—We know nothing of the firm. They do not appear in our "Directory."

"BUILDING NEWS" DESIGNING CLUB.

FIFTH LIST OF SECRETARIES.

E.—A Mountain Church in Wales, with a detached tower connected with the S.W. corner of the building by a short cloister corridor. The ground-floor space of the tower to be suitable, and available for those coming from a distance as a shelter or waiting-place, and for the ladies' benches. A large hall, 32 ft. to the west, divided into two, and with w.c.s. one for each sex. This waiting-room in tower to have open windows; also an open fireplace; but the whole thing suitably treated as a big porch, and so arranged to serve also as the main entrance to the church. The portal in tower to be placed towards the east, as the approach is from that direction. The group will take the form of a letter "T" on plan. The church is to seat 200 persons, including choir, and of men and boys. The font is to be at the west end. A recess must provide for small organ in the chancel next the vestry on the north side, and the choir, with a heating-chamber. The tower must be sturdy and square; the design generally to be plain and suited to stone construction, treated for an exposed situation, and in harmony with mountain surroundings. Stone-slatted roof. The site, close to a village, is on the east slope of a hill; but the fall of the site itself is but slight, and, being irregular, may be taken at will without spoiling a precise fall. The building must grow out of the site, and not be stuck down on a flat level plot as in a valley. The view must be taken from the S.E. The ridge line of the church must be one and the same from end to end. The chancel may or may not be separated from the nave by an arch. The tower upper stage to accommodate a small spiral of bells and a ringing chamber, with a stair turret outside. A turret is to provide for a sacristy bell on the north elevation near the chancel, but outside the ridge of the roof, which ridge is to be unbroken by any feature. The style to be 13th century in spirit. Two elevations, plans, and sections, and the design of the nave, must be large. Drawings, with compass on back, must reach the BUILDING NEWS Office on or by March 2.

DRAWINGS RECEIVED.—"Country Yoke!," "Thos.," "Black Diamond" (dressed), "Burch Wallis," "Cheer Up," (do not cut next time, see rules).

Captain G. J. W. Smyth, R.E., junior Government inspector of railways, Circle No. 7, Madras, is appointed Engineer-in-Chief, Lower Burma Railways, Reconnaissance Surveys, with the rank of superintendent of works.

Works of drainage and sewage disposal, which have been started in the village of Minthorpe, near Loch Leven, by the county council of Kirkcubright, were inaugurated on Friday. The engineer for the scheme was Mr. T. O. Niven, of Glasgow.

Works of drainage are being carried out in the village of Bethesda for the West Ashford Rural District Council. The estimated expenditure on the scheme, which is to be completed by November next, is £2,300, and the engineer is Mr. Martin.

TRADE NOTES.

The Wath Infirmary Hospital is being supplied with Sherland's patent Manchester stoves with descending smoke-flues, Manchester grates, and ventilators, by Messrs. E. H. Sherland and Brother, Ltd., of Fallowfield, Manchester.

Under the direction of Messrs. Baker and Penfold, architects, Reigate, Surrey, the Boyle system of ventilation (natural), embracing Bayley's latest patent air-pump ventilators and air-ribs, has been applied to Chaldon School, Surrey.

The new guildhall at London-derry is approaching completion. It has been erected from designs by Mr. M. A. Robinson, the city architect, the builders being Messrs. Laverty and Co., of Belfast.

A large concert hall is in course of erection in Douglas, Isle of Man, at Villa Marina Park, and which has recently been purchased by the corporation for the sum of £50,000, and extends in area over nine acres. The hall is to cost £29,000.

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TENDERS.

* * * Correspondents would in all cases oblige by giving the addresses of the parties tendering—any rate, of the accepted tender; it adds to the value of the information.

PITTSFORD, S.E.—For the remodelling of the hot water supply system, and the improvement of the dry-cleaning at the Cherry Garden-street fire-station, for the London County Council:—

Conyng, Ching, and Co., Long-acre, W.C.	£49 0 0
Hayward Bros. and Eckstein, Ltd., Borough, S.E.	350 0 0
Deane, E., and Besl, Ltd., Monument-street, E.C.	331 8 0
Canon & Hafford, Beckham, B.E.	310 0 0
Canon, W. G., and Sons, Ltd., Southwark, S.E.	277 0 0

Architect's estimate, £220.

* * * Recommended for acceptance.

BILLSWOO, For the erection of a temporary wooden school building, for 20 children, at Billswoor, for the Northumberland Education Committee:—

Coxon, F. D., and Co., Glasgow	£130 0 0
--------------------------------	----------

Accepted.

CLINTONVILLE, MARGATE.—For alterations and additions to the Fort Pearson Hotel, Clintonville, Margate, for the Fort Pearson Hotel, Ltd. Mr. F. Leonard Cooke, 24, Balmston Road, S.W., architect and surveyor:—

Lockwood, A. G., and Co., West-sate-on-Sea	£1,298 0 0
Auderson, Bros., Margate	1,235 0 0
Enton, F., Wandsworth (accepted)	1,235 0 0

(Continued on page XVI.)

Trade News.

WAGES MOVEMENTS.

HULL, Nov. 29.—The Building Trade have been struck by a strike of 12 hours. Many of the labourers state that it is fifteen years since they last had an increase.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claims upon our space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter be addressed to the EDITOR of the BUILDING NEWS, Edinburgh House, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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NOTICE.

Bound copies of Vol. C. are now ready, and should be ordered early (price 2s. 6d. each) as the edition is only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LIII., LVI., LXI., LXIII., LXV., LXVII., LXIX., LXXI., LXXIII., LXXV., LXXVII., LXXIX., LXXXI., LXXXIII., LXXXV., LXXXVII., LXXXIX., XC., XCI., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., and C. may still be obtained at the same price, as the other bound volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order as soon as many of them soon run out of print.

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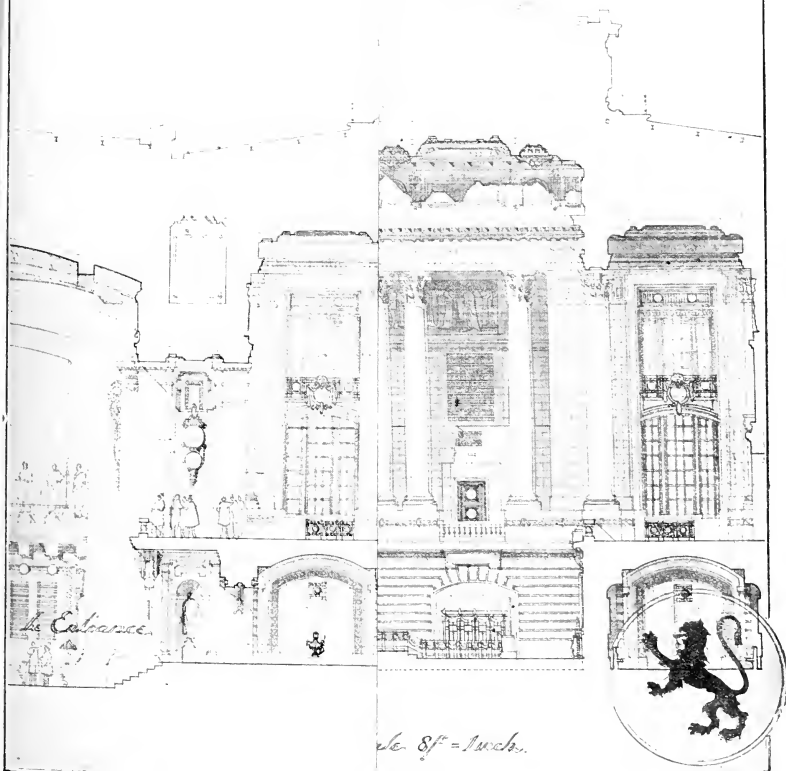
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LIST OF COMPETITIONS OPEN.

Alcantara to San Virente de Alcantara—Strategic Railway	Feb. 10
Shanklin—Liberal Club	£10 10s.	11
York—Elementary School, Campden-lane (Not Restricted)	.....	17
Drummen—Railway and Harbour, Junction Station	£50, £20, £25	17
Prestatyn—North Wales—Laying-out Estate Judge, H. V. Lancelotti, F.R.I.B.	.....	15
Harrow-on-the-Hill—Enlargement of Public Offices (21,500 sq. ft.)	30gs., 20gs., 16gs.	16
Wimpey, Man.—New Parliament Buildings	.....	31
Batavia—European Station of Colon General Maeso (Paso and Models)	.....	16
Hale—Laying out Unbuilt-upon Portion of District	£50, £25	16
Director General de Obras Publicas, Madrid	.....	11
E. G. Medley, Secretary, Clarendon-road, Shanklin	.....	17
J. H. Mason, Sec., Education Offices, Clifford-street, York	.....	17
The Chief Engineer, Christiania-Drummen Railway, Christiania	.....	15
Lord Abercromby and Trustees, 33, Henrietta-st., Strand, W.C.	.....	16
J. P. Bennett, Engineer, Harrow	.....	31
The High Comm. for Canada, 17, Victoria-st., Westminster, S.W.	.....	16
The Gen. Intel. Branch, 34, Bond-st., W.C.	16
J. G. Wynant, Chief, Coastal Office, 125, Hale	16

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ROYAL DE SOISSONS.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Etingham House,

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TIME- AND PIECE-WORK AND PAY-DAY IN THE MIDDLE AGES.

What we now call piece-work was known in the Middle Ages as task-work, though few references to this form of labour are to be met with. Of such references, however, perhaps amongst the most interesting are those to be found in an account of some building operations carried out at Hunsdon, in Hertfordshire, at the beginning of the 16th century.

This account of work done, material used, and wages paid is now in the Public Record Office, where it is labelled Exch. Acc. 465-20. In this document we find a careful statement of the work executed by the bricklayers, and immediately succeeding this we meet with the following addition:—

With certayne worke letten to them by Taske, as alle the wallis and crose wallis composing the orchard ground and the warden at Xv. the m [thousand] laying and XLVd. for every c of bryk heving which were spent and imployed in the copyng of the seid wallis. And making of all the doores and gates in the same wallis with dyverse other Taske works.

The above statement seems to imply that, in addition to the work done by the day, the same bricklayers had "let" or given out to them certain additional work at a fixed rate by the piece.

The next reference to task- or piece-work refers to that done by the tilers. In their case, it will be seen that they, too, were paid by the day and also by the piece of laying a thousand tiles:—

Tylers working as well by the day as laying by the m.

It is an interesting fact that these tilers were also engaged in "taking of tyles safetie from clde houses taken downe," such tiles being apparently used again for the new work.

The same MS. also tells us that the carpenters worked by task and by the piece. By the day the master carpenter received 12d., the warden 8d., inbovers 5d. and 7d., and others 6d. and 5d.

Payment by the piece is expressed in the following terms: "Certeyne workes letten to them by Taske—as the ende of the great galerye with ii chambers above the same, the great sluice in the nether-most pond and dyverse other taskeworke." The repeated phrase "certain work letten to them by task" may indicate possibly a custom of working overtime. In one part of the manuscript in which the phrase occurs, we have a reference which seems, in a measure, to support such an interpretation: "Artyffers and labours thier working as well by the day as by Taske that vs to save somme of them by longer tyme than

somme and begynnyng and endyng thier wages at sondry dayes within the tyme of this declaration."

The joiners engaged were on a different footing. Unlike the other craftsmen employed on this occasion, the joiners were paid by the task only. In the words of the manuscript, they were employed "all by tasks." But, as we shall see later, joiners, like other artisans, were generally paid by time.

We may now turn to another manuscript (474-12), and note some references to task-work executed by workmen employed at the Tower of London about the same period. In this bill we have the account for wages paid for work "wrought by the daye," and a series of payments with the heading "Redy money payde in prest vnto sundry carpenters in party of payment of serten frames taske worke." Murray's Dictionary tells us that "in prest" means "in advance." We thus see that the modern system of "sub-money" was not wholly unknown to the building trade in Medieval England.

In another series of payments entered we read of work "Wrought and fynnysshed by the day by carpenters," and of "A new frame to be made in taske now fynnysshed and redy to be sett up"; work which was "redy made in taske"; work which was "made in taske and almost fynnysshed"; and work "wrought in taske, half fynnysshed."

The account of the work done by the plumbers is headed "Plumbers: wrought by the daye and in taske during this tyme"; but which part of the work was paid for by the day, and what part by the task, is not set down.

The joiners in this account worked partly by time and partly by task, for we read of certain work being done, the account of which concludes with the words, "and the forsayd, the Kynges dynyng chamber, ys almost fynnysshed, wrought by the yarde in taske."

The account of the work of the glaziers is headed: "Glaziers wrought as well by the day as by taske"; but here, again, no indication is given as to what was executed by task.

Leaving now those accounts which refer to work done by numbers of men engaged at a time, we may turn our attention to the engagement of a particular class of artisans—the sawyers, who more frequently than other Medieval craftsmen were accustomed to work by the piece. Even in their case, however, it is clear that they were far more frequently paid by time than by piece-work.

The following example of payment by

the piece stands alone in the account from which it is taken, all other payments to sawyers being by time:—

To the same ii sawyers for sawyng of VC of borde at Xxd. the hundredthVs.
(Exch. Acc. 544-12.)

To sum up the result of our inquiries, we find that in the Middle Ages practically all classes of workmen worked both by time and by the piece; that the mention of task-work, stated as such or implied, is very rare; that almost all accounts of Medieval builders show the workmen to have been employed by the day. Consequently we may fairly conclude that piece-work was not common in Medieval England, the general system adopted being that of payment by time.

Pay-day in the building trade during the Middle Ages was, as it is now, the last day of the week—Saturday. The most satisfactory evidence of this is, perhaps, to be found in a book of accounts now in the Public Record Office, which contains a record of the particulars of work carried on at Barking in the time of Henry VIII. (Exch. Acc. 542-3). In this volume the payments to the various workmen employed are set down with unusual precision. Carpenters, sawyers, and "mersmen" are engaged on the work in progress. The marshmen appear to have been unskilled labourers; they received but 6d. a day, and are mentioned as "dygyng" and "laboryng." Probably they derived their appellation from the fact of dwelling on or near the Thames marshes.

At the commencement of the accounts we see that the men were paid by the day, such being possibly a common method of payment until the craftsman had been proved efficient and satisfactory. On the first page of the book we read:—

Mondaye the ii daye of Apryll: Carpenters, Flysht paid John Monte, Master carpenter there, the daye payeXIIII.
Item paid to John StevensonXIIII.

The names of two other carpenters follow, and on all the rest of the days of that week the daily payments to the same men are set down. These daily payments cover the period from April 2 to July 28, when we find an entry of payments to workmen on the "Saturdaye the XXVIII daye of Julye." The next bunch of payments to the men is on the following "Saturdaye" August 4, and on every subsequent Saturday all the workmen—carpenters, sawyers, and marshmen—are stated to have received "on Saturdaye" their week's wages. The following extract describes the Saturday payment to the carpenters, and in exactly the same way

the payments to the sawyers and marshmen are set down, each with the heading describing the payment as on the Saturday and the date of the day being also given. Paid to the carpenters on Saturday the XI date of August.

Item paid to John Monte, carpenter, for hewing and squaring of timber for the frame at the eye gates, by VI dates, ended the same date, at XIII the day VI. Item paid to Robert Clyver for hewing and squaring of timber for the same frame, by VI dates, ended the same date, at VIII the day VIII.

Sometimes, but not often, a man did not work for the full six days, but only for one, two, or more. Even then he received his money on the Saturday, being then paid for the exact number of days he had worked. This is shown by the following extract from the same volume:

Payde to the carpenters on Saturday the IXth day of February

Item paid to Richard Taxour for working there by in dates

The loss of days may have been due in part to the keeping of a saint's day or special festival of the Church, upon which all were enjoined to desist from labour and business. Also the loss might at times be due to causes which operate with us to-day—illness, accident, or possibly an encounter with that national beverage which finds mention even in Mediaeval building payments.

At no time does the number of days worked exceed six, the Sunday being throughout the Middle Ages always accounted a day of rest and recreation.

Though the day of the week for the payment of wages to the men is not commonly mentioned, many records of weekly payments remain, and there is no reason to suppose any other day but Saturday to have at any time been the day on which the wages were paid. The following example, selected quite at random, affords an instance where the wages are paid weekly, but the day is not mentioned. This extract is taken from the Record Office MS. Exch. Acc. 464.20.

The VIII pay for the manor of Hanworthe, the workmen's wages, beginning the XXXI day of August and endyth the V day of September in the XXXVII yere of the reigne of our soverayn and kynge Henry the VIIIth, by the space of VI dates indyccyde (incluive).

John Bawbyn for VI days at
Carpenters paid
Henry Kynmore for VI days at
VIII the day

Now if we turn to Bond's "Handy Book of Dates" we shall see that the 37th year of Henry VIII. was 1545, and the dominical letter was D. Now, turning to the tables in Nicholas' "Chronology of History" we shall see that the 31st day of August was a Monday, and the 5th of September a Saturday. Probably it is not assuming too much to suppose that an investigation on the lines of the days of payment of Mediaeval wages would show the last day of the six to have been in every case a Saturday. In any case the extracts we have given afford a very substantial evidence that Saturday was the day on which Mediaeval builders' workmen received their wages.

We may conclude that the actual number of days worked was in the case of experienced workmen kept at the six. We may further infer from a reference to the payment of wages in the 16th century that the 16th day of August was on the Wednesday, the 17th on the Thursday, the 18th on the Friday, the 19th on the Saturday, the 20th on the Sunday, the 21st on the Monday, the 22nd on the Tuesday, the 23rd on the Wednesday, the 24th on the Thursday, the 25th on the Friday, the 26th on the Saturday, the 27th on the Sunday, the 28th on the Monday, the 29th on the Tuesday, the 30th on the Wednesday, the 31st on the Thursday.

It is not necessary to go into the details of the days of the week, but it is worth noting that the 1st day of the month was on the Sunday, the 2nd on the Monday, the 3rd on the Tuesday, the 4th on the Wednesday, the 5th on the Thursday, the 6th on the Friday, the 7th on the Saturday, the 8th on the Sunday, the 9th on the Monday, the 10th on the Tuesday, the 11th on the Wednesday, the 12th on the Thursday, the 13th on the Friday, the 14th on the Saturday, the 15th on the Sunday, the 16th on the Monday, the 17th on the Tuesday, the 18th on the Wednesday, the 19th on the Thursday, the 20th on the Friday, the 21st on the Saturday, the 22nd on the Sunday, the 23rd on the Monday, the 24th on the Tuesday, the 25th on the Wednesday, the 26th on the Thursday, the 27th on the Friday, the 28th on the Saturday, the 29th on the Sunday, the 30th on the Monday, the 31st on the Tuesday.

case in some work done in the Tower of London in the summer of 1533. We read:

Pay day the XI day of June.
Pay day the XXX day of June.
Pay day the XIII day of July.
27th July, 10th August, and so on.

A very similar record is to be found in MS. 18315, dating 1539, but in all instances where the day of the week is mentioned, it is invariably a Saturday.

ESTIMATING FOR REINFORCED-CONCRETE WORK. II.

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MATERIALS FOR CONCRETE.

PORTLAND CEMENT.

The Portland cement should be specified to comply in all respects with the standard specification adopted by the British Engineering Standards Committee, and to be of a slow-setting description. This specification requires that briquettes (1 in. sectional area) of neat cement shall sustain an average tensile stress of 400lb. per square inch after 7 days, and 500lb. after 28 days.

In the United States, the American Society for testing materials have adopted as a standard specification, that neat Portland cement shall sustain an average tensile load of 150lb. after 24 hours in moist air; 500lb. after 1 day in moist air and 6 days in water; and 600lb. after 1 day in moist air and 27 days in water.

Portland cement can now be readily obtained in England, which will sustain an average tensile stress of 450lb. per square inch of sectional area after 3 days, when made with neat cement; 650lb. at 7 days; and 800lb. at 28 days; whilst briquettes made with 1 part cement to 3 of standard sand will sustain a tensile stress of 250lb. at 7 days, 300lb. at 28 days, and 400lb. at 3 months. In this country, Portland cement is ordinarily sold in bags of 200lb. weight each.

For reinforced concrete work of an important character, a special brand of Portland cement—known as "Ferrocrete"—is now largely used. It is packed in bags of 100lb. weight. Briquettes made with 1 part cement to 3 of standard sand will sustain an average tensile stress of 350lb. per square inch at 28 days, whilst concrete test-cubes made with 1 part cement to 5 of aggregate require an average crushing weight of 2,500lb. per square inch before being crushed.

WEIGHT OF CEMENT, ETC.

Portland cement weighs from 112lb. to 116lb. per struck imperial bushel, or an average of 90lb. per cubic foot. Portland cement is sold by the manufacturers at per centum (ton) of 2,200lb., and by retail dealers at per cental (or trade bushel) of 100lb.

1 imperial bushel = 1,285.76 lb. = 407.5 cwt. = 24.25 tons.
1 cwt. = 77.05 imperial bushels = 407.5 lb. = 17.5 cwt. = 1.0625 tons.
1 ton = 21.04 imperial bushels = 2 cwt. = 165.4 lb.

1 cental of Portland cement = 100lb. = 1 trade bushel of Portland cement.

1 ton of Portland cement = 200lb. = 2 centals = 2 trade bushels.

1 ton of "Ferrocrete" cement = 100lb. = 1 cental = 1 trade bushel = 1.5 cwt. cube approx.

AGGREGATES FOR CONCRETE.

Concrete should consist of a suitable proportion of coarse and fine aggregates mixed with Portland cement, so that the whole may form a solid, compact, and homogeneous mass. The aggregates should be of a gravel, ballast, shingle, sand, or broken stone, granite, brick, slag, cinders, or other material. For concrete with steel reinforcement, cinders or cinders and sand may be used, although these materials are not suitable for partitions, filling

in to floors, etc. When metal reinforcement is embedded in concrete of a porous description, it is liable to corrosion from moisture, etc., but if laid in dense, well-made concrete, the metal is preserved from external influences. Broken slag aggregates require very careful selection and preparation if used for reinforced concrete, as nearly all slags (especially copper slags) contain traces of sulphur, which is deleterious to the steel reinforcement. Some descriptions of steel slags are, however, frequently used for ordinary concrete in foundations, paving, etc. The slag should preferably be twice burnt in heaps, and allowed to weather in the open air for some time before being used for concrete work.

COARSE AGGREGATE

consists of gravel, broken stone, etc., which is retained on a screen of 3-16 in. mesh. The maximum size to be specified for the aggregate is dependent on the purpose for which the concrete is required. For reinforced work the maximum size of the aggregate should be such that the wet concrete can be easily placed around the reinforcement members, and in the various parts of the forms or moulds. The coarse aggregate for reinforced concrete should be "double-screened," and broken to pass a 3 in. mesh, but not 3-16 in. mesh. For ordinary concrete in foundations, pavings, etc., the aggregate should be broken to pass 3 in. mesh, but not to pass 3-16 in. mesh, whilst for concrete in large masses, a maximum of 2 in. mesh will suffice.

FINE AGGREGATE

consists usually of sand. When crushed granite, stone, or gravel screenings are used, they should be specified to pass 3-16 in. mesh, but not 1-16 in. mesh. The fine aggregate, whether sand, crushed granite, or gravel screenings, should be entirely free from dust, dirt, clay, or earthy particles, and, if necessary, should be washed before use, so that it may combine with the cement to form a suitable mortar for filling up the interstices, and cementing together the portions of coarse aggregate which form the greater part of the finished mass of concrete. Sand, suitable for the fine aggregate, is obtainable in nearly all districts in this country.

WEIGHT OF MATERIALS.

The average weight of granite, stone, bricks, and other materials used as aggregates for concrete, and weighed before breaking, etc., is as follows:—

	Weight per foot-cube—lbs.
Granite	170
Sandstone	150
Limestone	140
Bricks, ordinary	120
Gravel, with sand, moist	110
Gravel or shingle, coarse	95
Sand, coarse	90
Sand, fine dry	91
Coke, breeze (screened)	45

VOIDS IN AGGREGATES.

The proportion of voids in aggregates varies according to the maximum and minimum sizes to which the material is broken and screened. The larger the size of the individual pieces of aggregate, the greater the proportion of voids. To produce a good and compact concrete, the material should be broken to such maximum and minimum gauges, that a complete range of varying sizes may be produced, which will to some extent pack themselves together, and thus reduce the amount of space remaining to be filled in with the sand (or fine aggregate) and cement. The following table gives the average proportion of voids for aggregates of different sizes, filled into a measure without shaking or compressing the materials, viz:—

COARSE AGGREGATES.

Average percentage of voids per yard cube.	
Granite, slag or stone, broken to pass 1 1/2 in. mesh, but not to pass 3 in. mesh	45 per cent.
Gravel broken to pass 1 1/2 in. mesh but not to pass 3 in. mesh	47 " "
Brick broken to pass 1 1/2 in. mesh, but not to pass 3 in. mesh	45 " "
Brick broken to pass 3 in. mesh, but not to pass 4 1/2 in. mesh	41 " "
Gravel or shingle broken to pass 1 1/2 in. mesh, but not to pass 3 in. mesh	43 " "
Gravel or shingle broken to pass 3 in. mesh, but not to pass 4 1/2 in. mesh	42 " "

FINE AGGREGATES.

Sand, fine, passing 30 in. mesh	34 per cent.
Sand, coarse, passing 30 in. mesh	33 " "
Crushed granite or stone, passing 30 in. mesh	38 " "

WEIGHT OF AGGREGATES.

The weight of an aggregate depends on the nature of the material and the percentage of voids present. Granite, slag, or stone aggregates broken to pass 3 in. mesh, but not 3 1/2 in. mesh, contain about 45 per cent. of voids. Taking the weight of granite at 170 lb. per foot cube, the average weight of 3 in. to 3 1/2 in. granite aggregate is $170 \times .55 = 93$ lb. per foot cube, or 22 cwt. per yard cube. The average weight of various descriptions and grades of aggregate is as follows:—

COARSE AGGREGATE.

Average weight per yard cube.	Ft. cube per ton.
Granite broken to pass 3 in. mesh, but not to pass 3 1/2 in. mesh	22
Gravel or shingle to pass 3 in. mesh, but not to pass 3 1/2 in. mesh	22
Sandstone, broken to pass 3 in. mesh, but not to pass 3 1/2 in. mesh	20
Limestone, broken to pass 3 in. mesh, but not to pass 3 1/2 in. mesh	18
Brick, broken to pass 3 in. mesh, but not to pass 3 1/2 in. mesh	16
Coke breeze, broken to pass 3 in. mesh, but not to pass 3 1/2 in. mesh	11

FINE AGGREGATES.

Sand, ordinary	24
Crushed granite, passing 30 in. mesh	21

SUPPLY OF AGGREGATES.

The increasing use of reinforced concrete for engineering purposes has resulted in considerable attention being directed to the economical and systematic preparation of aggregates of uniform grade and quality. The careful screening of the aggregate to specified sizes is essential for the production of a uniform quality of concrete. Large quantities of broken granite, slag, and stone are also used for tarmacadam and road-making purposes generally. The demand for crushed granite, slag, stone, gravel, sand, etc., has therefore developed to such enormous proportions that many firms now specialise in their exclusive production. The materials are quarried, broken or crushed, and screened in the most economical manner with the aid of labour-saving machinery, and in such large quantities that it is frequently much cheaper to purchase the coarse and fine aggregates ready prepared for use than for the ordinary contractor to buy or quarry the material and afterwards break and screen it to the specified sizes.

CRUSHING OR BREAKING THE AGGREGATE.

Hand-broken and screened aggregate is considerably more expensive than machine-broken material; but hand-breaking produces a stronger form of aggregate. The material is more cleanly broken by hand than by machinery, as the latter crushes instead of cleaving the aggregate to the desired sizes. A man will break about 1 cubic yard of brick aggregate in four hours to pass 1 1/2 in. gauge (measured after breaking), 1 cubic yard of stone in six hours, and 1 cubic yard of ordinary granite in eight hours, giving an approxi-

mate cost of 2s. 3d., 3s. 6d., and 4s. 6d. per cubic yard respectively.

The average cost of breaking or crushing stone, granite, etc., under ordinary conditions, including screening to required sizes, is as follows:—

COST OF BREAKING STONE, ETC., PER YARD CUBE.

	To pass 1 1/2 in. mesh, but not to pass 3 in. mesh	To pass 3 in. mesh, but not to pass 4 1/2 in. mesh
Hand Broken	2s. 3d.	3s. 6d.
Granite	4s. 6d.	6s. 9d.
Stone	3s. 6d.	4s. 9d.
Bricks	2s. 3d.	3s. 6d.
Machine Broken	2s. 3d.	3s. 6d.
Stone	1s. 9d.	2s. 6d.
Bricks	1s. 2d.	1s. 9d.

WATER FOR CONCRETE.

Only clean water should be used, and, where practicable, fresh water should be specified in preference to sea-water. The quantity of water used in making concrete depends to a large extent on the nature and proportions of the aggregate and the purpose for which the concrete is required. Aggregates of a porous character, such as broken brick, etc., require a larger quantity of water, owing to their absorbent nature, than is necessary for a practically non-absorbent material, as granite. The following table indicates the average volume of water absorbed in 24 hours by different materials:—

	Volume of water absorbed, as compared with volume of material. (Average)	Gallons of water absorbed per ft. cube of solid material. (Average)
Granites	1 per cent.	1/4
Sandstones	" "	" "
Limestones	12 " "	3
Brick, ordinary	20 " "	1 1/2

When mixing concrete, the water should be added gradually, so as to secure a uniformity of mixture. Water assists consolidation, and the concrete should, therefore, not be used in too dry a condition. For ordinary purposes, a cubic yard of concrete requires about 30 gallons of water.

MEMORANDA.

1 gallon of water = 10 lb., = 106 ft. = 277 in.
1 cu. ft. of water = 6 3/4 gallons (approximately) = 62 lb., = 1,000 oz. = 50 cwt. = 0.25 ton.
1 cu. yd. of water = 168 gallons = 1,428 lb. = 73 ton.
1 lb. of water = 27.72 cu. in. = 0.06 cu. ft. = 1 cu. gal.
1 ton of water = 231 gallons = 3.96 cu. ft. = 1.35 cu. yd.

UNIT OF MEASURE.

To avoid any difficulty in the weighing or measuring of cement for hand-mixed concrete, a bag of cement should be adopted as the unit of measure. Taking the weight of a cubic foot of Portland cement at 90 lb., a 200 lb. bag of cement equals 2.29 foot cube, whilst a 100 lb. bag of "ferrocement" equals 1.19 foot cube. For 1:2:4 concrete, unit measures containing 4.49 foot cube of sand (or fine aggregate); 8.9 foot cube of coarse aggregate for each 200 lb. bag of cement should, therefore, be provided, or some multiple of this proportion of measure.

MIXING CONCRETE.

Machine mixing is preferable to hand mixing, and where practicable should be specified. Every care must be taken that the proper proportions of cement and fine and coarse aggregates are systematically determined and rigidly adhered to. When mixed by hand, the concrete for reinforced work should be mixed in small batches, so that the whole may be used before setting commences. For quantities of less than 500 cubic yards, it will generally be cheaper to mix the concrete by hand, whilst for larger quantities machine-mixing will be found more economical. No concrete which has begun to set should be used. Experiments have shown that cement concrete mixed for two hours before being used loses one-fifth of its normal strength as compared with similar freshly-made concrete.

CONCRETE MIXTURES.

For foundations and other concrete, it is difficult to give a definite proportion, because no fixed rule can be given, and the materials should not be mixed with water, but (not in a liquid state) should be the concrete mixture. It is readily mixed around the site, and is not mixed with separating the concrete from the cement and sand. The concrete should be well worked and pumped into the forms and around the reinforcement, so that when set it may be of such density that it is practically air- and water-tight.

SHRINKAGE OF MATERIALS.

The materials for concrete being separately measured in a dry state, a considerable shrinkage occurs when they are mixed with water, thoroughly incorporated, and finally consolidated or rammed in position. Portland cement when mixed and consolidated with water, shrinks about 12 per cent., sand (or fine aggregates) about 15 per cent., and coarse aggregates average about 12 per cent. For cement concrete having a proper proportion of fine and coarse aggregates, and laid under average conditions, it is found that from 38 to 39 foot cube of dry materials is required to produce 1 cubic yard of consolidated and well-finished concrete. A total quantity of 39 cubic feet of dry materials has, therefore, been adopted for ordinary estimating purposes. The average total shrinkage in the bulk of dry materials for concrete, when mixed together with water and consolidated, amounts to about 29 or 30 per cent.

PROPORTIONS OF CEMENT AND AGGREGATES.

In all cases the proportions of cement, fine and coarse aggregates, should be separately specified by volume; but to insure, as far as possible, a uniform quality of concrete, the quantity of cement required should be added by weight to the bulk of aggregate. The average weight of Portland cement (British standard specification) may be taken at 90 lb. per cubic foot, and its volume should accordingly be calculated on this basis. For ordinary reinforced concrete, a proportion of 1 part cement to 6 parts of fine and coarse aggregate is largely used. The fine and coarse aggregates should be separately measured. For 1-to-6 concrete, the proportions generally adopted are: 1 part cement, 2 parts sand (or fine aggregates) and 4 parts coarse aggregate. For convenience, this proportion is written as 1:2:4, and this convention is now in general use. Richer mixtures of concrete are frequently used for reinforced-concrete piles, piers, beams, etc., such as 1-to-4 or 1-to-5 concrete; whilst for ordinary and reinforced concrete in foundations a weaker mixture of 1 to 8 or 1 to 9 may suffice. The proportions of the concrete materials should be so arranged that the cement and fine aggregate when mixed together will form a sufficient quantity of mortar to slightly more than fill all the interstices of the coarse aggregate, so that the resultant material may form a compact mass.

CONCRETE MIXTURES AS USED FOR ORDINARY PURPOSES.

General Building and Engineering Work.

1 to 6 concrete (1:2:4). For ordinary foundations where no great strength is required. Also for construction concrete to ground-floor basins, A. A.
1 to 8 concrete (1:2:4). For foundations, walls, foundations, retaining walls, reservoirs, etc., B. B.
1 to 5 concrete (1:2:3). For foundations, walls, foundations, retaining walls, reservoirs, etc., C. C.
1 to 4 concrete (1:2:3). For foundations, walls, foundations, retaining walls, reservoirs, etc., D. D.

Reinforced Concrete Works.

1 to 8 concrete (1:2:4). For foundations, walls, basins, A. A.
1 to 6 concrete (1:2:4). For foundations, walls, buildings, piers, A. A.
1 to 5 concrete (1:2:3). For foundations, walls, buildings, piers, A. A.
1 to 4 concrete (1:2:3). For foundations, walls, buildings, piers, A. A.

floors, to 10 ft. and upwards, retaining walls, drains, culverts, conduits, heavy columns and beams, chimneys, and general work.
 1 to 1 1/2 concrete (1:1:3). For walls, reservoirs, etc., where impermeability or resistance to water pressure is required, piers, domes, stanchions, piers, tanks, short piles, cast and moulded concrete work, etc.

1 to 1 1/2 concrete (1:1:3). For walls and floors, drains, thick piles, tanks, piers, cast and moulded concrete work, in door and window heads, sills, etc., and for specially strong piers, beams, watermain work, etc.
 1 to 1 1/2 concrete (1:1:3). For walls, floors, partitions, etc., under thin, thick, piers, domes, piles, etc., where exceptional strength and durability are required. Also for cast and moulded concrete work in door and window heads, sills, etc., in exposed positions.

1 to 1 1/2 concrete (1:1:2). For floors and walls under thin, thick, piles, columns, etc. Also for fine cast and moulded work, subject to heavy wear.

In the United States, the American Association of Cement-Users have introduced the following classification for representative concrete mixtures, known as "Rich," "Standard," "Medium," and "Lean" mixtures respectively.

A "Standard" mixture is 1 to 6 concrete (1:2:4), and is in general use for concrete floors, beams, columns, arches, reinforced engine or machine foundations subject to vibration, tanks, sewers, conduits, etc.

A "Rich" mixture is 1 to 1 1/2 concrete (1:1:3), as for columns and other structural parts subject to heavy stresses, or requiring exception watertightness, etc.

A "Medium" mixture is 1 to 7 1/2 concrete (1:2:5), for ordinary machine foundations, retaining walls, abutments, piers, foundation walls, ground floors, pavings, etc.

A "Lean" mixture is 1 to 9 concrete (1:3:6), for unimportant work in masses, large foundations supporting a stationary load, backing to masonry, etc.

The relative proportions of fine to coarse aggregate in any of the foregoing standard mixtures are varied to suit the materials available and local requirements.

The quantities of cement, sand (or fine aggregate), and coarse aggregate required for making 1 cubic yard of concrete depend upon the description and size of aggregate used, and on the specific proportions adopted for the concrete mixture. Under ordinary conditions it is found that for coarse aggregates broken to pass 3/4 in. gauge, and not 3-16 in. gauge, an average total quantity of 39 cubic feet of cement with fine and coarse aggregates is required for every cubic yard of consolidated and well-finished concrete. The average weight of 1 cubic foot of Portland cement (British standard specification) is taken at 140 lb. The detailed quantities of materials used per cubic yard of concrete under normal conditions are accordingly indicated in the following table:

MATERIALS REQUIRED FOR ONE CUBIC YARD OF CONCRETE
 (Coarse aggregate broken to pass 3/4 in., but not 3 in. gauge)

Proportions.	Cement.	Sand or fine aggregate.	Coarse aggregate.
1 to 1 concrete	150 cu. ft. (21,000 lb.)	41	87
1 to 1 1/2 concrete	130 cu. ft. (18,200 lb.)	41	79
1 to 2 concrete	110 cu. ft. (15,400 lb.)	41	71
1 to 2 1/2 concrete	95 cu. ft. (13,300 lb.)	41	63
1 to 3 concrete	80 cu. ft. (11,200 lb.)	41	55
1 to 3 1/2 concrete	70 cu. ft. (9,800 lb.)	41	47
1 to 4 concrete	60 cu. ft. (8,400 lb.)	41	39
1 to 4 1/2 concrete	50 cu. ft. (7,000 lb.)	41	31
1 to 5 concrete	40 cu. ft. (5,600 lb.)	41	23
1 to 5 1/2 concrete	35 cu. ft. (4,900 lb.)	41	15
1 to 6 concrete	30 cu. ft. (4,200 lb.)	41	7
1 to 6 1/2 concrete	25 cu. ft. (3,500 lb.)	41	0
1 to 7 concrete	20 cu. ft. (2,800 lb.)	41	0
1 to 7 1/2 concrete	15 cu. ft. (2,100 lb.)	41	0
1 to 8 concrete	10 cu. ft. (1,400 lb.)	41	0
1 to 8 1/2 concrete	5 cu. ft. (700 lb.)	41	0

The total amount of materials required for any quantity of cement concrete of specified proportions can, therefore, be readily ascertained from the preceding table by multiplying the unit quantities given therein by the total quantity of concrete required. For instance, 100 cubic yards of 1 to 6 concrete (1:2:4), made with 7/16 in. to 3/16 in. coarse aggregates, would require 50,000 lb. of cement (say 251 bags of 200 lb., or 22 1/2 cement tons), 41 cubic yards of sand, and 82 cubic yards of coarse aggregate.

WEIGHT OF CONCRETE.

The average weight of various descriptions of concrete, mixed in the proportion of 1 part cement, 2 parts sand, and 4 parts coarse aggregate, is indicated in the following table, viz.:

	Average weight per foot cubic.
Granite concrete (1:2:4)	148
Ballast	140
Sandstone	130
Limestone	130
Brick	130
Breeze	81

(To be continued.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual meeting for the address to students and the distribution of the studentships and prizes of the Royal Institute of British Architects was held at 9, Conduit-street, W., on Monday evening, the chair being occupied by the President, Mr. Leonard Stokes. Mr. H. T. Hare, Hon. Secretary, moved that a vote of condolence and sympathy be sent to the relatives of the late Mr. William Glover, Fellow, a past-president of the Northern Architectural Association, and as such a representative of that body for some years on the Council of the Institute. Mr. Glover was, he added, well known for his generous gifts and benefactions to the Northern Association, the Architects' Benevolent Society, the Edward VII. Hospital at Windsor, and the Laing Art Gallery, Newcastle, and many benevolent and philanthropic societies. Mr. Glover, who retired from practice twelve years ago, was eighty-two years of age. Mr. Hare also referred to the recent deaths of Mr. Francis William Humphreys, Fellow, of Trinity-street, Hastings, and of Mr. John Codd, Associate, of Ventnor.

THE ROYAL GOLD MEDAL.

The President announced that the Council had decided to submit for recommendation to His Majesty the King as a fitting recipient of the Royal Gold Medal the name of Mr. Basil Champneys, a recommendation which was received with applause. The recommendation will be brought before the members for confirmation at the business meeting to be held on Monday, March 4.

PRESIDENT'S ADDRESS TO STUDENTS.

The President said as he had failed to produce an address to students from a student, he would try to take himself back rather more than a quarter of a century to his own student days, and relate a few of his own experiences and mistakes; for though at the time he was not of an age when mistakes are generally made, or, at any rate, admitted, yet now he could see very well that he was not quite so infallible as he thought himself to be at the time. Let them take warning, therefore, and remember that it has been very truly said that even the youngest of us may make a mistake! Well, continued the President, my first one was that I began my architectural life much too young, and without proper preparation; but as my health broke down time after time at school, and as I had a taste for building rabbit hutches and drawing traversy windows with a pair of compasses, a kind friend suggested that an architect's office was a nice easy place to be in, he was by way of being an architect himself, and should have known better—and that as no examinations were necessary, I could easily become an architect! So without more ado I was articled for three

years. There may have been some excuse in my case, but from personal experience I can say that no young architect should begin his career without a thoroughly good all-round education. Whether, from an architectural point of view, he should go to the Universities or not, I am not prepared to say; but from a worldly aspect I feel sure he would be wise to do so. But to return to my mistakes. The first thing my master, who was quite a good architect in his way, asked me was whether I preferred Gothic to Classic architecture. Well, I thought of my rabbit hutches and my traversy-windows and answered, "Gothic." The result was not what I expected, for I was set to cut my teeth on "the Orders," and as I could not use my instruments at all properly, you may imagine what I made of them. Of course, I should have been taught to draw, and a good many other things besides, before I ever tackled "the Orders" at all—as is now so well done in architectural schools—but, as a matter of fact, after the first few months, I never looked at them again, at least not for many a long year. My master was an old Architectural Association man, and a great believer in that body, so I was told I must join and look forward to holding some office in it as he had done. That was my first ambition. Well, the "Brown Book" was studied, and as the subjects in the advanced class of design seemed easier than those in the elementary class, I plunged into the advanced class without more ado, which, of course, was a great mistake, for whereas my first design was for a cricket pavilion—which taught me next to nothing—I might have been put through my facings on "an Atrium to a Roman House" in the elementary class, for which I should have had to look up some authorities, and go into the subject properly and refer to my old friends, the Orders. But not having had any proper schooling, I must needs try a short cut to architectural fame! This, of course, was the greatest of all mistakes, for the older I get the more certain I am that a good grounding in things architectural is absolutely necessary; so, if you will be advised by me, you won't try any short cuts whatever, but go steadily on up the ladder, round by round, from the bottom to the top, and if, on looking back, you remember having on occasions taken two or three rounds at one time, go back at once, however near the top you may be, and go over them again, one at a time, before it is too late, for we cannot be too thorough in our studies if we want to be authorities in after life. And if we want to be thorough we must cultivate our observation on all occasions. In my nursery days I well remember a little story we were very fond of, called "Eyes and No Eyes," and it was a good little boy "Eyes" who noticed everything, and his walks were full of interest, for he saw the cows milked, heard the birds sing, and smelt the flowers, whereas "No Eyes" came home having been impressed only by the hardness of the road and the length of his walk! Now, life is full of "Eyes" and "No Eyes"—principally "No Eyes"—and the "Eyes" get on, and "No Eyes" do not "revise" or "re-learn" particularly among architects, for what are we without observation? Is not our one way of learning how to produce desired effects to find out how others have done what we want to do, and to make quite sure how they did it? Do we not measure every inch of the admired object, so that we may have it on paper, and by comparing the drawing with the original, make ourselves able to judge work the other way round? Let us begin with our paper work, knowing in our mind's eye what it will look like when produced in bricks and mortar! "Eyes" can do this; "No Eyes" can't. Of course, a sense of proportion is a very valuable gift; whether it can be taught or not I should not like to say; but observation will help us a great deal, and not only observation of the object itself, but also its position, material, and surroundings, for it is obvious that a slender column which might look right in a screen would look quite wrong carrying a large building, so that we must use judgment with such rules as we have, and to get judgment we must train our own eyes, and not depend on other people's. My three years of pupillage being over, I went by

advice into a quantity surveyor's office for a year; and perhaps the only thing I ever learnt thoroughly in my life was how to "square dimensions" for I spent "six months hard" at it. I also learnt how to find areas and volumes, but of course, except that I now have a general idea of what there should be in a bill of quantities—only too often to find that it is not there! While in the surveyor's office I had a month's holiday, which I used largely in measuring up a fine old church, the drawings of which got me into the Architectural School at the Royal Academy as a probationer, but of course when I got into the schools I found that I knew much more than my masters—a fatal thing, but I was still very young! The teaching in those days, however, was a very perfunctory performance. Each student got—if he was lucky—a few minutes' criticism once a week from the visitor; while, in my case, what I wanted was solid hours of instruction. But I suppose it was my own fault for going to the wrong shop. While in the schools, I made several vain attempts to win a big prize. The first time I think I might have had a chance, but for a much better and more elaborate design. This elaborate design not only lost me that prize, but perhaps the next one also. For the second time I thought that elaboration either fetched the R.A.'s, so I would be "elaborate" and "bright." But I was giving out the prizes, and there was a want of "expressional fitness" about some of the designs—and there no doubt was! Elaboration had failed, so next time "expressional fitness" was my one idea! But this did not come off, either! The mistake I made after my first attempt was not going quietly on design, but I could without any regard to my judges, and I was not a bit of them. Take warning, therefore, and never whatever you do—either play up or down!—to your judges, even if they are the Council of the R.I.B.A. Do justice to yourself and yourself only, and never bother about anyone else—until you get a client; and then, unless you have luck, you may perhaps even wish you hadn't got him. After I had finished my year's quantity surveying, about the year 1900, I went to the Academy School, and for nearly a year as clerk of the works on a big building, and saw a certain amount of life and its wicked ways in the building line; and then about another year or so at office work, during which time I won my only prize—the Pugin—more by good luck than anything else, for there were two other men better than I in the class, but I was the only one who could not make up their minds which was the best, so they gave it to me! Much to my surprise, for although I had met in some good honest work, I knew that either of the two other men was more likely to get it than I was, but I wanted to get my hand in, for perhaps the following year. Another mistake I made was to avoid the examinations established by the Institute by joining as an Associate amongst the last batch who were elected without examination, instead of entering taking to my books and fitting myself in the only right way, for a youngster, to become a member of this Institute. I have now described to you my student days proper, and will let you off the old platitudes about being a student all my life. The only thing that I have omitted to mention is that for about three months in each of the years, I travelled—twice in England and twice on the Continent—my only regret being that the bulk of my work was not more serious and not quite so sketchy; but, in common with other students, my eye was caught by bits of pretty detail, and, instead of worrying out the general scheme and construction of a fine piece of work, some dodgy little corner which made a pretty sketch was too often selected. Now, the less I want you to learn from this is that I was too young, and not well equipped for anything, at the time I attempted it, and that I drifted into practice long before I should have done, and here I am in the Chair holding forth to you some ten or fifteen years too soon; not that ten or fifteen years make any difference to me now, but, properly spent at the beginning of my career, they would have enabled me to address you this

evening with much greater advantage and profit to yourselves as students.

Mr. Gerald C. Horsley, President of the Architectural Association, and Owen Jones, student, 1887-8, read the following:

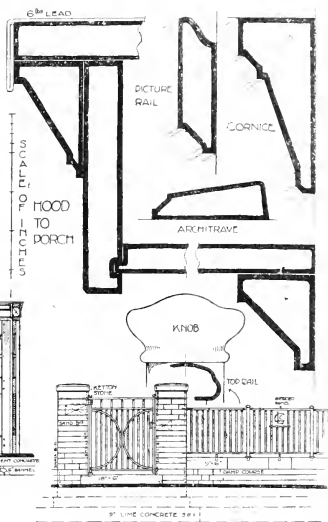
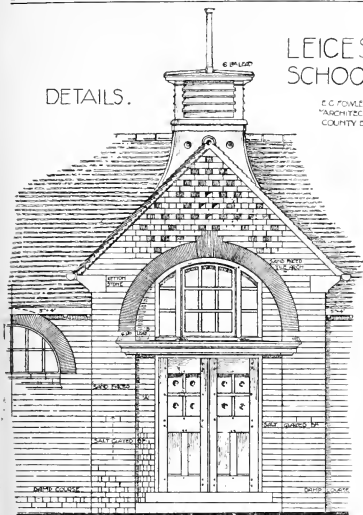
CRITICISM OF DRAWINGS SUBMITTED FOR THE INSTITUTE PRIZES AND STUDENTSHIPS, 1911-12.

As in past days, I have myself been a competing student, and retain a vivid recollection of the hopes and fears incident to that period of development and effort, my desire to-night in criticising these drawings is to combine justice with sympathy, and if I have to point out what appears to me to be mistakes, it is with the sole purpose of helping the competitor in his future work. On the whole, the number of students who have entered for the competitions this year is well up to the average. For the Essay prize, twelve competed; for the Soane Medallion, thirteen; for the Tite Prize, eleven; for the Pugin Studentship, nine; for the measured drawings prize, five. On the other hand, the Owen Jones Studentship, the Arthur Cates Prize, and the Grissell Gold Medal have, strange to say, not attracted many competitors. Time has not permitted me to read the essays which were submitted; but I am indebted to Mr. Reginald Blomfield, who took part this year in judging them, for some valuable remarks concerning them. As regards the essays, for the Soane Medallion and the Pugin Studentship, the entries were unequal. Some of them were irrelevant to the subject, but that sent in by "Redundancy," to which the prize is awarded, is an exhaustive and thoughtful essay on a difficult subject, and has well earned the prize. Certain serious literary faults appear in the majority of these essays, such as a tendency to rhetoric, which fails of its purpose; a habit of pouring the facts with quotations from every possible writer, poets, essayists, and others, many of them having little or no bearing on the points under consideration, flippancy and familiarity in style, occasional lapses of grammar, and, lastly, a mistaken conception of what either an essay or a book should be. Many of these essays are mere strings of classification; the subject is divided and subdivided till it runs out like a river, lost among the sands. No central idea emerges as a result of all the industry, and the writer appears to forget that an essay or a book should be an organic composition with a beginning, middle, and end, and a backbone of some definite idea running through the whole. The object of these essays is not a display of literary fireworks, but the clear and logical presentation of the conclusions which result from the careful study of facts. The art of the writer should not obtrude itself; it is shown in the orderly marshalling of his forces, in the lucidity and precision of his statement, and in a certain suppressed emotion that gives the deeper harmonies of his music. A method of writing which shocks and jars is wrong. It is with writers as with artists, the best are those who make least part of the technique. I would recommend this excellent criticism to the consideration of all architectural students. The time must come when the many-sided character of an architect's education will necessitate a better understanding and co-operation between our architectural schools and the secondary schools of this country. In turning to the exhibition of drawings, we find it consists, as usual, of two parts: (1) That which comprises exercises in design; and (2) studies in ancient architecture. In forming some judgment of these two divisions, a careful observer will discover a certain weakness in the design section, and a certain strength in the other. The fact that this year the Soane Medallion has not been awarded supports this view. The strength in the design section lies in the fact that the work submitted is, for the most part, of a high order. The way in which he has solved the problem presented for solution, and the quality of his drawings, should be particularly noticed. He has best fulfilled the purpose of this competition, which is to produce a fine design, finely drawn. The Soane Medallion is not awarded this year for the reason that no one of the designs shows a real grasp of the conditions

governing the competition, or an entirely satisfactory solution of the problem. The Council have decided, in consequence, to bracket together the two designs under the motto, "A Circle City" and "A Circle in Honourable Mention, and to divide the prize of £100 between the authors of them. With the decision of the Council I agree, for it must be admitted that justice has been done in circumstances where the choice and decision were of considerable difficulty. The two successful designs represent two different views of the problem, and neither has wholly succeeded. "A Circle City" has, apparently, been over-influenced by the fact that the building is intended to stand in a park. The simple lines of his plan, with all the principal rooms on the ground floor, suggest too much an enlarged garden pavilion. This suggestion is fatal to the expression of dignity a civic building should possess. Moreover, it is questionable whether in actual building the juxtaposition of a rectangular and circular structure would look well, should it be so, in a circular building of this size, the creation of tiresome echoes. The arrangement also of the plan has prevented the provision of a suite of reception-rooms in direct connection with the principal apartments. Although a large and handsome reception-room is shown on the first floor, it is too remote, and is only directly connected with a small gallery of the Guildhall, "Circle City's" chief strength here, in the design, is a restraint which is shown in the design of his elevations, a restraint which is very welcome in these days of what is called "Free Classicism," and, secondly, in the way in which he has displayed his design; the drawings in pencil, with light washes of colour, are the best in the room. The author of the set marked "A Circle in Honourable Mention" is very different. His plan is of the type of an hôtel de ville; but the elevations, notably the façade, adorned with caryatides, which give an unusual touch of gaiety to the design, are very appropriate to the open position proposed. The weak spot in the scheme is that the central Guildhall is too small. The small size of the hall has led to the entrance hall being unnecessarily large, and it is doubtful whether the assembly and reception rooms on the first floors are of sufficient dignity or importance. Generally speaking, the author is to be congratulated upon a design which is restrained and dignified in character. With the exception of the site plan, and some accessories in the perspective drawing, which would be better away, the draughtsmanship is decidedly good. "A Circle in Honourable Mention" is, in my opinion, his plan is the best in the competition. Had his elevations and sections displayed greater powers in design, this set would have surely earned for its author a more prominent position. The chief excellence of the design lies in the plans; the grouping of the reception-rooms at the head of the principal staircase, between the banquet hall and a small hall, on the first floor, is particularly happy. Again, the Guildhall itself is admirably placed and excellently designed for its purpose. The author has evidently paid special attention to the many details in accommodation necessary for a building of this important character. It is unfortunate that the drawings in this set are rather too black and too crudely executed. Drawings which are delicately and beautifully delineated are more attractive and more helpful in portraying a design. "Sailing Ship" has a symmetrical, and, in many respects, a very well arranged plan, especially that of the first floor, where the banquetting and small halls are well placed with excellent separate entrances. The Guildhall suffers through not being better connected with the principal entrance. A feature of the scheme is its elliptical front and fine central tower. It is regrettable that the drawings, generally so good, should show signs of hurried workmanship. "Fraternity" has a grandiose scheme on lines which seem to be rather too large. This defect has led to a serious separation of the reception-rooms from the large hall of the building, and there is a certain monotony in the square

LEICESTERSHIRE
SCHOOLS.E. G. FOWLER,
"ARCHITECT,"
COUNTY OFFICE.

DETAILS.



ELEVATION OF FRONT FENCE

SMALL SCHOOLS RECENTLY ERECTED



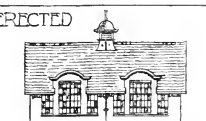
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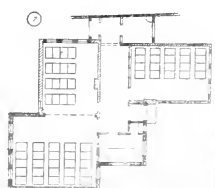
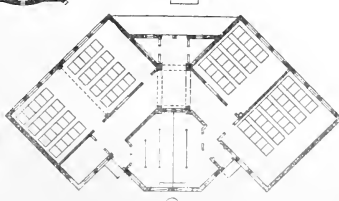
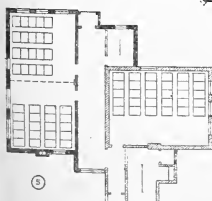
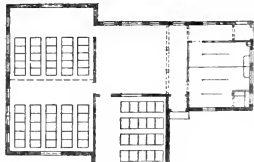
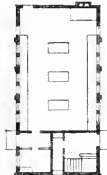


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IN LEICESTERSHIRE.

E. G. FOWLER,
"ARCHITECT,"
COUNTY OFFICE,
LEICESTER.

SCALE OF FEET.



THE SINGLE TAX MOVEMENT.*

By EDWIN SAVILL (Fellow).

In reading a paper on the proposals for the taxation of land values known as the Single Tax Movement, I regret to say that it is necessary to justify myself, because people, even those who share my knowledge, are inclined to dismiss the subject as "absurd," and the project as "impossible." For this purpose I do not think I can do better than read to you a few extracts from the various papers and pamphlets published by the United Committee for the Taxation of Land Values, who have been working quietly for many years, but who now, having obtained a considerable following, both in and out of the House of Commons, are becoming more active and encouraged by their temporary successes, are working more openly.

[The extracts referred to, as also some from Single Tax literature, were read.]

This means a single universal tax upon all land values, whether covered, undeveloped, or agricultural land. Doubtless you will say that that means the nationalisation of land pure and simple, and I do not think it is denied that is the goal of their ambition; but the subject of land nationalisation is too large a one for me to touch upon to-night, however suitable it might prove for discussion at some future meeting of our members. But, then, the object of the committee is to secure an official valuation of all the land throughout the country, distinguishing the "site," or unimproved, value from the total or improved value of each hereditament. This site value is then to form the basis upon which all taxation, local and imperial, is to be assessed. The advantages claimed for this proposal are:

- (1) Taxation of land values, the only just system of rating and taxation.
- (2) The freeing of industry from monopoly and undue burdens of taxation.
- (3) That will give real relief to the rural districts, and working agriculturists from the present excessive burden of rates and taxes.

The subject clearly is one which must be considered from two aspects, the political and the economic. On the former all good citizens should, I think, endeavour to form an unbiased and judicial opinion, considering carefully whether the ownership of land should be looked upon as subject to peculiar circumstances, calling for treatment different to other forms of property. Fortunately, perhaps, this room is not the place to discuss the ethical side of the problem, nor would it be illumined by the special and technical knowledge of the surveyor, and may, therefore, be neglected in our discussion to-night. But the economical aspect is different, and I submit that upon this side of the question no class of the community can throw more light or better deserve a hearing than those who follow our profession. Their training has been directed towards anticipating correctly the influence of various factors upon the value of land, and should their voice as a public body be raised in the practicality of the committee's proposals, whatever opinion might be held as to their political desirability or the reverse, the nation would, I consider, be ill-advised to adopt them without the clearest proof that the proposition was mistaken, and that the proposals were in themselves economically sound. Now, while it is not difficult to find arguments to relate some of the members of the profession to the committee, it is not easy to deal with their main contention that all rates and taxes should be assessed on site values without the help of local information as to the unimproved value of the land in this country, which does not at present exist. Here I must admit that I am a great deal stumped and have formed some rather hazy and not much thought and weighing of the existing figures of the same value of the land in the United Kingdom. Most of our rates are £3,000,000, and I should have presumed that with £3,000,000,000 of land, and a hundred millions or so of people, we could make comparatively true

difference in the result. The proposals put forward by the committee are two in number, a smaller one for immediate consumption, and a larger as their ultimate goal. Under the first it is proposed to assess on site values all local rates, the Government grants in aid thereof, and a further sum equal to that now brought into the Imperial revenue by the taxes on food, the unit of assessment being the United Kingdom in each case.

Local rates	£3,000,000
Government grants	25,000,000
Food taxes	£300,000,000
Total	£303,000,000

The more advanced proposal is that of a Single Tax for all purposes, local and Imperial, to be assessed on site values. The amount needed annually for these purposes is about £248,000,000, a sum approximating very closely to the total rateable value of the United Kingdom, estimated as at present on land and buildings. Let us, then, calculate what this would mean on my estimate of site value:

To raise £104,000,000 on an assessment of £3,000,000,000 would need a rate of about 8d. in the £, while 18. 8d. in the £ would be needed to raise £248,000,000.

To the uninitiated these rates, perhaps, may not appear excessive, just as the undeveloped land duty of 3d. in the £ may have caused them to marvel at the restraint of the Chancellor of the Exchequer. But they have failed to appreciate the true inwardness of assessing an annual tax upon a capital value. The 3d. in the £, which looks so innocuous, is a tax of this kind, and on a 4 per cent. table will be found equal to an income tax of 12 1/2 d. in the £. Eighteen in the £ will equal an income tax of 16s. 8d. in the £, and 18. 8d. an income tax of 41s. 8d. in the £. And now I should like to consider, with your help, and bearing in mind these figures, how far the land taxers' statements are justified. I will take up as very little as possible, because I think that very often the discussion is the best part of a paper.

(1) "Taxation of land values the only just system of rating and taxation." To quote from "Land Values" of May, 1911: "Direct taxes are of two classes—(1) Taxes that are levied upon men in proportion to their ability to pay (inheritance and death duties, etc.); (2) taxes that are levied upon men in proportion to the benefits received from the public. There should be little difficulty in choosing between these two. The first is a device which is unjust, whilst the second is manifestly fair, and the single tax, falling under this head, is the ideal one. Let it be shown that the value of the services rendered to each individual would be justly measured by a single tax, and we ought to hear no more of the practical doctrine of taxing men in proportion to their wealth." The result of putting all taxation upon the site value of land must necessarily be that only those persons who own or use land would pay taxes. Of course, the advocates of the tax say that everybody must, directly or indirectly, use land, so everyone would have to pay their share, but there are many instances in which enormous profits are made with very little use of land, and of people with huge incomes owing no land and living in comparatively small houses. Take the case of the big trader who has a small office in the City, who would pay very little in rates compared with the benefits he receives from the protection of his interests by the Army, Navy, and police, and from other national services. For example, a man with say, £300,000 a year, derived from various sources, foreign and home direct investments, etc., occupying a small office in the City, and living in the country on a house with thirty acres of land rated at £400 a year, he would now pay in direct taxes and rates £2,125, while under the Single Tax system he would only have to pay about £250 a year. On the other hand, a man who derives an income of £300,000 from an agricultural estate, and who would now pay, say, £2,700 a year in taxes and rates, would, under the Single Tax system, be called upon to pay no less than £5,000 a year; but against this it is to be presumed that the

rates now paid by the tenant, say, £6,000 a year, could be passed on to them in additional rent.

(2) "The freeing of industry from monopoly and the undue burdens of taxation." The question of monopoly would more properly come under a paper on land nationalisation. If the land taxers knew the competition there is among landowners to secure a good seeking tenant, they would not talk about "monopoly" under the present system. But they would be able to mention it quite correctly, if and when all the land in the country belonged to the State; when there would be no competition to secure a tenant, and when a seeking tenant would have to accept such terms as were offered him by the one and only landlord, to go without land altogether. The question of how other industries would be affected by the suggested change in the method of raising revenue is a difficult one. I think the idea is that if all buildings and improvements were exempt from rating industries would move out into the country where land is cheap, and where, consequently, the tax payable would be small in amount. Being upon this point, however, I must not forget to mention that the owners of their present premises, would be heavily penalised in having to pay crushing taxes upon valuable sites which they would be obliged still to occupy, in that they would certainly not be able to sell them. Undoubtedly those industries which were in a position to move would be inclined to do so; but, before moving, they would have to consider the effect of taxation on means of transit, market, labour, and other matters. There would in all probability be great changes in our industrial towns. A good deal must depend upon how much land an industry occupies, and the value of that land, but above all upon a point on which the land taxers themselves do not at present seem very clear—namely, whether a revaluation of the land would, made at certain periods, or whether the present valuation would remain the basis of taxation for ever. If the land is not to be revalued, the valuations which are now being made (of which the site value is to be used for assessing the new taxation) would quickly become entirely false, all the conditions under which they had been made being changed the moment the new Act was passed. In spite of this fact the owner would be compelled to go on as long as he was able paying taxes upon the original valuation, arrived at before the great changes had taken place, and notwithstanding the fact that his land had depreciated in value, his tenants departed, and new ones unable to be found. When ruined and unable any longer to pay the taxes his land would presumably pass to the State. Doubtless some owners in districts which are now of little value would presumably score, because they and purchasers from them would only have to pay taxes on a low site value, although owing to capital expended on roads, factories, houses, etc., their land would be worth a far higher sum. On the other hand, if the land is to be revalued at certain periods there would be, I think, a large increase in the amount of tax in the £, owing to the depreciation in price of valuable land being more rapid than the appreciation in the localities where land is now of little value. As a consequence the industries which had moved into the country would find that, on account of this increase in the amount of the tax on the increased site value of the land they occupied (and they are all supposed to be going to spread themselves out and use much more land than they do at present), they would be benefited much by the change. I think the position can be summarised in this way. If land is not to be revalued, some factories, small houses, and cottages will occupy larger areas of land, and owing to the low original value of their sites, will pay comparatively low taxes, while in other cases the converse will obtain, certain sites being burdened with taxes, and cashing as to make them almost incapable of economic use. On the other hand, land is to be revalued, industries will build their workshops and cottages on the smallest possible area of land, because they will fear the increase in the amount of taxes they will have

to pay as values increase. This surely will be no improvement on the present state of affairs.

(3) That rural districts will be relieved, and agriculturists freed from the present excessive burden of rates and taxes. On this head it only appears necessary to point out that with a rate of 8d. in the £ on the site value, a farm valued at £20 an acre (site value) and let at 20s. an acre, would have to pay 13s. an acre taxes, an amount which would be increased to 33s. an acre with a rate of 1s. 8d. If there is to be a periodical revaluation, and with the movement of factories into rural districts the value of land rises, it is quite conceivable that although prices of produce may not increase to any large extent the amount of taxes payable on a farm may double or quadruple. Cottages will have to pay three or four times as much in rates as they do now, and the housing problem will become even more acute than it is at present. This has been very clearly proved by Mr. Trustram Eve in his valuable paper of June last before the Farmers' Club. If we read the literature of the Single Taxers and attend their meetings, we shall find that, while merely stating that their proposals will prove a palliative for all ills, without, however, showing how they will do so, they appeal largely for support, and at their meetings certainly get it, by dwelling upon the unfairness and hardships arising out of the present system of rating and taxation. We all agree with them as to the need for amendment in this latter respect, and I venture to think that if a fair basis for rating purposes could be devised, it would do much to render their campaign unnecessary, and would, perhaps, be the best method of preventing the kind of localist proposals which would set up a system even more unfair and inequitable than is the present. Surely it is the duty of surveyors and all connected with the land to assist the Legislature in the attempt to solve the problem.

For discussion I put before you a suggestion which I hope may lead to interest being taken in the subject, from which good results may follow. At present land and house property in the United Kingdom pays annually £69,000,000 in rates, and of this sum no less than £28,000,000 is paid towards education and other Imperial purposes. If this sum of £38,000,000 were taken off local rates, it would leave a sum of £31,000,000 to be raised locally for such purposes as drainage, parish roads, lighting, etc., and the fairest way to raise it would be by means of a rate upon the capital value of land and buildings, or, if preferred, upon land alone. Purely agricultural land should pay proportionally only as at present. Under this system undeveloped land would be rated upon its capital value, and would, therefore, pay an undeveloped land duty, while it would indirectly pay increment value duty, because as it increased in value it would pay a higher rate. The valuation would have to be very carefully made, but it could be carried out very much as it has been in the past, except that a professional valuer should advise the assessment committees. The rate would be a very small amount in the £ to provide the sum which is now required for local purposes, and the money raised would be for the direct benefit of the actual community concerned. The question arises how to deal with the £38,000,000 which is made up as follows:—

England and Wales—	
Justice	£98,500
Police	25,700,000
Highways (half)	7,000,000
Hospitals	1,567,000
Landis	5,625,000
Police	6,391,000
Poor	11,963,000
Unemployment	210,000
Vaccination	244,000
Other loan charges	2,000,000
	60,000,000
Deduct Government grant	25,000,000
	35,000,000
Scotland and Ireland	3,000,000
Total	£38,000,000
The total amount of Imperial expenditure is	£173,000,000
Add as above	38,000,000
Total to be raised Imperially	£211,000,000

Certain amounts would still be received as at present:—

Excise	£32,000,000
Duties on wines and spirits	5,000,000
Post Office (shares)	4,000,000
Stamp and Land Tax	1,000,000
Old Land Tax	700,000
Crown Lands	480,000
	£41,180,000
Leaving still to be raised	£169,820,000

The best method of finding this sum is hardly a matter which comes within our province to consider, but there is a strong and rapidly increasing feeling that the fairest way would be by a universal income-tax, and as the personal incomes of the British Isles amount to about £2,000,000,000, the tax would only be about 1s. 8d. in the £, and everyone under such a system would pay according to his ability. A working man's income would be considerably less taxed than it is at present, as he now pays high taxes; taxes on tea, sugar, coffee, tobacco, and other necessities, and if the duty were taken off beer his position would be still further improved. It would be necessary to consider whether the income-tax should, or should not, be a graduated one, but the limit of exemptions would have to be low. I am afraid I always look upon the reading of a paper before the Institution as a sort of equanimity of the subject dealt with. It is discussed for an hour and then buried in oblivion. The subject of my paper is far too much alive to be dealt with in that way, and here I would again remind you of the deputations to Mr. Asquith and Mr. Lloyd George. We may deride it, put it upon one side, but we must not be blind to the fact that its supporters are, by their continual coming, adding to their numbers every day. It has always seemed to me that now the land question has been made one of the most important questions of the day, the Institution ought to throw over its attitude of aloofness, and begin to take an active part in elucidating a question such as this, by carefully considering it, and then giving its views on the subject to the authorities and the public, and, moreover, it should emphatically insist upon being heard.

THE HOUSING OF THE WORKING CLASSES.

By Mr. E. C. P. MONSON, F.R.I.B.A., F.S.I., Vice-President, S.A.

Around all the munificent gifts, charities, and garden city schemes rage several points which I propose to go into a little more in detail, and they are as follows:—Which is it advisable to build: (1) Block dwellings, or (2) cottages; (3) the block versus the cottage? (4) if cottages, whether detached, semi-detached, or in rows; (5) number of houses to the acre; (6) the essentials of the best house built cheaply.

1.—BLOCK DWELLINGS.

These are divided into two kinds. (a) The Associated.—A type, however, which is quite out-of-date and which nobody in his senses and thinking of hygiene or of the ordinary care of life would suggest. Very many of these, however, have been built, and it is only more or less recently that they have been discarded. They comprise living-room and one or two bedrooms only, and all scullery and sanitary arrangements are apart from the living rooms and used by the tenants of more than one, very often three or four other tenements, and mostly leading to gossiping and waste of time, general lack of cleanliness, and sometimes to more evil consequences.

(b) The Self-Contained.—This type is good. Each flat being what it says, self-contained—that is, having everything which an ordinary cottage would have, and combining all the comforts of a house without interference from anyone.

Cost of Block Dwellings.—The cost of block dwellings, according to Alderman Thompson, altogether apart from the cost of the land, averages about £100 per room, and the land costs about £75 per room, making

the total about £175 per room. This is higher than the cost of the cottage per room, but it can be readily seen that where the sites in London, or other large cities, are impossible, or impracticable, even from a philanthropic standpoint, to build other than block dwellings. Block dwellings, however, should not be built higher than five stories, and only four if the cost of the land is such as will allow this, owing to the vital question of adequately lighting all the rooms. In the case of the trustees of the will of the late W. R. Sutton, the site at the corner of Old street and City road, London, E.C., comprised only 1½ acres, and cost about £50,000, and the buildings just over £70,000, a total of £165,000 for 284 tenements and 14 shops—885 rooms and sculleries and shops, etc., which works out at about £80 per room for the buildings and about £167 per room for the land; and on another site where buildings are now being erected at Chelsea, the cost of the land was £76,000 for about 3½ acres, and the building contract is £176,000, a total of £252,000 for 675 tenements and thirty-four shops—2,175 rooms and sculleries and shops, etc., which works out at about £80 per room for the buildings, and about £35 per room for the land; and in both these schemes, after deducting 40 per cent. for rent, rates, and taxes, and other outgoings, the rents are so arranged as to produce 2½ per cent. only on the total capital outlay. The blocks here provide for one, two, three, or four-roomed tenements, and in all these tenements accommodation is made for a scullery, bathroom, separate w.c., larder, coal-cellar, etc., which is not counted when speaking of the number of rooms. The entrances to the flats are from ground staircases. Every floor of fire-resisting materials, as also are the staircases and roofs; the playgrounds and roadways are made with tar macadam; shrubberies are planted wherever possible, and care is taken to tend the trees and shrubs so that they shall have a fair chance of life. Staircase walls are in glazed bricks, and generally the whole of the work is carried out not much more than the idea of a block of houses, but with the cost of upkeep and renewals. In Liverpool, where the corporation have been doing a great and praiseworthy work on the Bevington-street area, and where they are proposing to spend a further considerable amount of money, the block dwellings are to comprise living-room, one or two bedrooms, scullery, w.c., bath, and one bathroom. As to tenements, these are from long lines placed outside the buildings; but personally I am not greatly in favour with this particular method of entrance. It, however, has something to be said for it. It saves space, because one staircase can be made to serve a larger number of tenements than if the entrances were direct from the staircase. In Manchester very many dwellings of this latter character have been put up by the corporation, and it is becoming quite a usual thing for large municipalities to go into the question of doing (as rightly they should) something for the poor; but I am of opinion that in doing this the buildings should be kept of such a character and at such rents as should make them self-supporting, with no charge on the rates.

2.—COTTAGES.

The Sutton Trustees are purchasing a site at Birmingham, about 2½ acres in extent, at a cost of about £125,000, including roads and sewers, and the proposition is to build 215 houses and cottages of varying sizes, from six rooms to one room two storied maisonnettes, accommodating a total of 251 families in 1,650 rooms and sculleries, the whole scheme working out, with roads and sewers, at about £60,500, which gives an average cost per room of £36 for the buildings and about £40 for the land and roads. These figures, from my own work prove conclusively that the cost per room in the cottage for building and site is less than the cost per room and site in the block. The cost of cottage building, as given in "Housing Up to Date," by Alderman Thompson, averages, roughly, from £50 to £70 per room, and the average site cost about £7.10s. per room; but it is impossible to make any comparison because, as I have said before,

CURRENTE CALAMO.

The attendance of senior members and of visitors at the Conduit-street galleries on Monday evening was one of the smallest that we have seen on the occasion of a prize distribution for many years past. This, doubtless, was due to the weather; but the students mustered in good force and clamorously welcomed their successful brethren with their accustomed good-will. The President, in a very brief and unconventional address, told the story of his progress to the presidential chairs of the Association and Royal Institute. As Gothic work is at a discount at the moment no student is likely to repeat Mr. Stokes's mistake and prepare to be an architect by building rabbit-hutches and drawing tracery windows. In Mr. Horsley's scholarly and well-reasoned criticism of the designs, commendation and blame were carefully balanced, and no student could have heard it without picking up valuable hints for future work. Some of us listened eagerly during the distribution of studentships and prizes for a repetition of the protest against awards to designs prepared in schools and colleges of art and architecture; but possibly the President had been able, at the private interview proffered, to allay the feelings of the student who disturbed the calm of the last meeting. There is, after all, something to be said from the objector's point of view; but it is not easy to suggest a remedy for an obvious injustice to isolated and provincial students. The Institute competitions are announced many months in advance, and the masters of schools of architecture and colleges of art naturally set in their classes identical or similar problems and criticise the work of their men. Doubtless the architect's assistant in a country town, who works alone but aspires to carry off a studentship, is discouraged.

By the nomination of Mr. Basil Champneys as the Royal Gold Medalist for the year, the Institute Council, as on the last occasion when the blue ribbon was awarded to an English architect, have gone outside the ranks of the Institute to do honour to an eminent practitioner. Mr. Champneys, like Mr. T. G. Jackson, has stood aloof from all professional bodies. The son of a former Dean of Lichfield, he is in his seventieth year, and has been in independent practice for five-and-forty years. His chief work is the Rylands Library at Manchester, and he has planned Somerville and Ruskin colleges, added new buildings to Merton, New, and Oriel colleges at Oxford, and to Winchester College, while at Cambridge Newnham College, the Divinity and Literary schools, and the Archaeological Museum have been built from his designs, and his schools and churches are scattered all over the land. All his works exhibit a freshness and originality and a cleverness in composition that stamp them with character and individuality.

Is it a sign of the times when the Surveyors' Institution is invited to brace up its energies against the Single Tax, as by the author of the paper read last Monday night, and given in another page? The Single Tax seems gaining ground in the Britain beyond the seas. Johannesburg has lately got a Single Tax majority, one enthusiastic Single Taxer having run away with the Labour party and converted them. In Canada the idea is

apparently gaining ground. Only lately the Attorney General of Alberta introduced into the Provincial Legislature a Bill to compel all new towns in that growing province to levy rates only on land and on local monopolies held by private owners. In the case of towns already established it is provided that a 60 per cent. assessment may be levied against buildings; but that this must be reduced at a rate of not less than 15 per cent. of the actual value each year. This, apparently, would mean that every town and municipality in Alberta must be on the Single Tax basis within four years.

At a meeting of the Institution of Automobile Engineers last week, a very sensible departure with regard to papers was announced—viz., that in future they are to be published in the technical Press a week in advance, and only a short resume given at the meeting. Thus the full time of the meetings will be devoted to the discussion. This plan has long been in vogue on the other side of the Atlantic. The American Institution of Civil Engineers, in addition, invites written contributions to the discussion from members at a distance. We almost wonder sometimes that men of eminence here can be induced to contribute papers at all, considering the poor attendances they get, and that some societies, the R.I.B.A. included, do all in their power to limit publication.

We observe a meeting is to be held to-night, at the Royal Society of British Artists, to found yet another Society, which is to charge itself with the task of looking after the practical improvement and artistic development of London. As Sir Aston Webb appears to be one of the moving spirits, we may take it for granted that the methods and objects of the proposed new association will at least be bonâ fide. How far this latest addition to the long list of organisations which, in a more or less amateur fashion, undertake to enlist public interest in public matters of general concern, is likely to fulfil its purpose, we must wait to see. Many societies of the kind seem to us more or less the outcome of conscience pricks, goading those of us to action who neglect our obvious duties as citizens, or as members of bodies whose first concern should be the insistence on, and watchful vigilance with regard to, the public control of things we do nothing to better in the right way, but expect somehow to improve by joining ourselves to enthusiastic outsiders largely made up of cranks and visionaries.

For ourselves, we should expect to accomplish more by bringing the impetus of the R.I.B.A. to bear on the London County Council, the City Corporation, and the various smaller or greater glorified vestries, than by any number of outside combinations "of painters, sculptors, architects, and sociologists, tempered by City magnates, great land owners, and economists." Thanks mainly to Mr. J. W. Simpson, the Institute Conference on Town Planning in 1910 did more to enlighten the general public with regard to the possibilities of the Act, and to awaken genuine interest here and abroad, than all the twopenny-halfpenny outside associations, and organs, and amateurs, whose feeble imitations of the splendid work of the Institute has since bored most people. As far as architects are concerned, the very best work the proposed new society can accomplish can be infinitely better done by the

Institute. It should be the case, and it is representative bodies of the other kind. If any architect or artist dream of doing more than it is his first duty to become a member of his own proper organisation for his and his own spander force on the general and the bringing of feeble dilettantes to the cause, his own vigour will be wasted and his work misinterpreted and misconstrued by the amiable but not very wise people who will make up these little manual colonies of cliques of fussy people, generally of old and younger or later by shrewd wire-pullers and axes of their own to grind.

The activities of the Garden Cities and Town Planning Association are many. At the annual meeting on Monday, Mr. Justice Neville, the president, told his hearers that the association "stood higher" abroad than here. It has been "giving advice" at Budapest, Australia, Newfoundland, many parts of the United States, Nicaragua, Cape Colony, and elsewhere, and in spite of all this "work in the world" the subscription list remains as it was two years ago. Possibly results achieved here—even at Letchworth and Gidea Park—have not sufficiently enthused home admirers? However, so Mr. Cecil Harmsworth told the meeting—the Federal Government of Australia, in want of good ideas and "good plans" for its new capital, has "sent to the Garden City." So all will be right there even if mere architects decline to compete. "A former Letchworth man" is also in charge of the town planning of Winnipeg. Perhaps another is to "improve London" on the lines of Professor S. D. Ad-head's rather drastic paper which was read at the meeting. Professor Ad-head has his eye on the Mall, where he wants more sculpture and, "perhaps," its boundaries on the parks "converted into sculptural ways." We venture to hope it is all only "perhaps." As for the tube railways and bridge demolition, Professor Ad-head wants—well, they have all yet to be discussed at a future meeting. For the present, as we have said, the Garden City people doubtless have their hands full!

The conversion of empty churches into cinematograph theatres—"transformations of temples of worship into temples of mirth," as the local journal which records the latest instance calls it, proceeds apace. Trinity Chapel, Marestreet, Hackney, sometime known as "St. Thomas's Church," now the "Empress Electric Theatre," will doubtless satisfy "the need for recreation in these strenuous times, which is growing more and more acute"; but what the sterner Puritan preachers, Philip Nye and Adoniram Byfield, who filled the pulpit of the old Presbyterian Meeting-House of which it was the successor, would have said we do not know. However, the Mayor of Hackney was present at the opening luncheon last week. "Whilst some people might deplore the conversion of the building into a picture-palace, he was sure such places, if they did not do as much good, did a great deal of good. They afforded possibilities for education as well as amusement, and it could not be conceived that public bodies could divorce themselves from enterprises of that sort without feeling that they had taken upon themselves a great responsibility." Possibly his worship had been reading the recent Episcopal fulminations against Sunday amusements, and was not quite sure, after all, that the fact that corporations have no souls to be damned,

* We gave a portrait of Mr. Basil Champneys, R.A., in our issue of Feb. 7, 1910.

guaranteed the immunity of their individual members."

A store clerk at Woodwich Free Ferry has invented an improved hair comb. Being an official of the London County Council, he has to get the sanction of the municipality before he can patent his invention. In this matter the clerk, engineer of the depot reports that the inventor has had facilities in originating, working out, and perfecting the invention by reason of his official position, though exactly how a Free Ferry store clerk can in the course of his employment find facilities for working out and perfecting a hair comb is not easily conceived. Still, it is clearly possible for hair combs to be improved, so the County Council is going to permit its inventive employee to patent his idea, but on the understanding that the Council (one and indivisible) shall enjoy the full benefits of the invention without any payment for royalty. The *Manchester Guardian* suggests that the County Council wants to get a full benefit of the improved hair comb without any charge to the ratepayers. Whether our contemporary means for the behoof of some of its unknown members, or for wholesale supply presently to the children of the Council schools, we do not know.

The annual visit of the Reeve of Lambourne to Godolphin Manor House, near Perranzabuloe, in the early morning hours of Candlemas Day, was repeated at 6.30 a.m. last Friday, with all strict adherence to long-prescribed ceremony. When the Reeve, in the person of Mr. A. J. Spilbury, of Clowance, arrived last Friday morning, the place echoed with the screeches of owls and notes of blackbirds. Standing outside the heavy old entrance door, Mr. Spilbury repeatedly rapped it with a stick, saying three, "O yez! O yez! O yez! here come I, the Reeve of the Manor of Lambourne, to demand my lord's dues, which are three groats and a penny in money, a loaf, a cheese, and a collar of brawn, and a jack of the best ale in the house." God save the King and the lord of the manor." This ceremony was repeated at the inner door of the quadrangle, and finally at the table in the hall. The Reeve received the money, and the rest of his demands were satisfied by the provision of a sumptuous breakfast, which was partaken of by about eighty persons.

The origin of the observance, which is said to date back 600 years, is traced to the sporting proclivities of our West of England forebears, who, born before Derby days and football competitions, had to wager away their estates as best they could. So, we are told, an ancestor of the Rev. St. A. H. Milesworth St. Aubyn, J. P., of Clowance, and one of the Godolphins, respectively, wagered the estates of Godolphin and Lambourne, Perranzabuloe, on a snail race across a table. After the snails had proceeded some distance, Godolphin unwisely pricked his snail, hoping thereby it would crawl faster; but, instead of that, it withdrew its head and refused to move until St. Aubyn's snail had accomplished its journey. Ever since those days the custom of Lambourne's Reeve annually visiting Godolphin and making certain demands has been kept up, to show that Mr. St. Aubyn has a lien on the Godolphin estate. Owned by the Duke of Leeds, and tenanted by Mr. W. Terence Richards, the old hall is at present used as a farmhouse, and is annually largely visited by tourists and others.

THE BAROQUE ARCHITECTURE OF ITALY.

Design, as the present mode of architectural expression, seems to be tending towards the flashy ebulliscence of enrichment and irrepressible eccentricity hitherto associated with the exuberance of the Rococo, to the detriment of the calm and comely beauty of the cultured "Classic," which the revivalists of so-called "Late Renaissance" till lately held up as the goal for modern development in artistic building. Apart from such a standard, the audacity of more "fancy brands" in architecture, aided as they may be by the facilities of graphic draughtsmanship, run riot in the hope of inspiring novelty, and thereby attracting likely clients who favour publicity. The demand accordingly creates the supply; and if we are to give place to the Baroque, with all its voluptuous romance, it would be better by far to accept the lead of such masters as Michelangelo, Correggio, Sansovino, and Vignola, whose love of the stupendous in composition first made its claims felt in the 16th century. In this sense, and as an object-lesson, too, of what to avoid in the works of later men, we can but accord a welcome to the handsome volume of coloured photographs just published by Mr. William Heinemann, with an able introduction from the erudite pen of Sig. Corrado Ricci, Director-General of Fine Arts and Antiquities of Italy.* He points out that Baroque art, as a very gifted autocrat, was full of talent, fire, and resource; but the equilibrium of it all broke down, though the original intention artistically was sincere. He urges that it would be unjust to insist that the artists of Italy, who vied with each other in the exaggeration of their principles, meanly undervalued the needs of facilities in the main only that they might have the pleasure of satisfaction in a wanton way. Lomazzo denounced exaggeration; Vignola in theory was attached to the antique; Scamozzi adorned his pupils to employ restraint; but notwithstanding these admonitions, actual examples in practice set by such leaders of style as the Fontanas, and the degradation exhibited by the architecture of Bernardo Buontalenti, whose bottom limit was finally reached as illustrated by his *Grande Teatro di Palazzo Pitti* (Florence, 1570), not to mention the stucco decoration by Giacomo Serpotta and his pupils (1717) in the Oratorio di Santa Cita, Palermo, or much earlier still in date, the barbarisms of Federico Zuccari in the house known by his name in Rome (1590).

It has been argued that the satiety engendered by the abuse of prevailing forms originated new manifestations while progress was made imperative—hence the apogee in the 17th century of the so-called eruption of the Baroque, the irregular pearl of the Portuguese Baroque, or derived, perhaps, from the Latin *Verruca*—a wart—a befitting term for the pretentious and eccentric vogue prevalent in Italy from 1580 to 1760.

The saloons of palaces or the big theatre designs, say of the Bibiena, with their overloading of consoles, balustrades, and crushingly elaborated ceilings, no doubt, to be judged rightly, should be associated in the mind, as they were actually, with a repellent public, frocked in damasks, jabots, laces, embroidered ribbons, flowing wigs, and rouged complexions, capped with feathered heads. Contemporary dress ill befits the bizarre of this sort now; but then all was of a piece in the society which produced these buildings and their style. Historically a right appreciation can only be thus insured.

The cupola of St. Peter's at Rome, by Michelangelo in 1547, was the first and most powerful affirmation of this enfranchisement and a liberation from the beneficent weariness of the rules established at the 1579 council of Borghese, which became less imposing, and hundreds of domes more or less resembling their majestic mother were erected; but the genre of Baroque art should not be confounded with that of Michelangelo and the *epigoni* of the Renaissance. The

Baroque in France coincided with Louis XIV., and the Rococo style, to be exact, is attributed to Louis XV. Baroque had triumphed in Rome long prior to the yielding which followed to the puerile but graceful forms of the Rococo, which gradually travelled by way of Piedmont and Lombardy, and went from North to Southern Italy. Twentieth-century work in England seems to be emulating details such as those of the Palazzo Trevuzzi, Milan; the Palazzo del Grillo, Rovigo; and Palazzo Raggio, Padua, Genoa, from whence Filippo Parodi's Grotto has furnished precise models for fashionable architects' civic buildings here. Bartolomeo Bianco's vestibule and stairway to the Genoa University (1628), the stucco staircase at the Palazzo Contarini, now Plainer, the colonnade by Francesco Borromini, Palazzo Spada, Rome (1632), and the earlier courtyard by Martino Longhi the Elder, of the Borghese Palace, Rome, if familiar, are at least purer and more worthy examples to import, like the Municipio Palazzo at Milan, by Galeazzo Alessi (1558-60).

All of these and very many more are exceedingly well represented in Sig. Ricci's volume, and those who would add so capital and handy a book on the Baroque to their studio or workshop library, in sculpture as well as of the mistress art, will not fail to appreciate the enterprise of Mr. Heinemann, who has thus placed the latest collection of the kind so excellently before the architect and designer.

POMPEIAN DECORATIONS.*

We heartily congratulate author and publisher alike on the production of this handsome and extremely useful volume. The comparatively few who know the beauty of the gorgeous colouring of the mural decorations at Pompeii are well aware that no book in existence has reproduced them with even approximate fidelity. Rare and high-priced volumes have appeared, illustrated by chromo-lithography, but the limited demand has not encouraged publishers, nor have the results induced purchasers to a sufficiently extensive extent. Thanks to the three-colour photographic process, and to Mr. Briggs's discriminative selection and careful copying, Mr. Batsford has been able to produce this excellent series of sixteen coloured plates of friezes, ceilings, walls, shrines, and mosaics, and eleven half-tones of other subjects, such as marble friezes, tombs, tables, etc. Each plate is accompanied by a descriptive and explanatory note, and an introductory sketch of the history of Pompeii and its decorative arts up to the date of its final destruction in A.D. 79.

The publication is timely, because the present fashion, which favours the Græco-Roman style and the archaic Greek forms, undoubtedly renders the study of examples like those given necessary by architects and decorators. Few will suggest, of course, that inspiration should be sought from the latter examples, to which most of the wall decorations belong, remarkable as their execution and facility of expression is; but the dexterity with which the artistic juxtaposition of tones and shades is managed is full of instruction for us, as, no less, is the utter absence of laborious striving for relief, and attempts at illusory detachment from the background. Perhaps in the three earlier periods, the second and third—the Architectural and the Ornate periods, as they have been termed—there is more to be profitably studied; nevertheless, few will regret that Mr. Briggs has not limited his reproductions thereto, and, almost perfect as the coloured plates are, all will be grateful for such half-tones as that of the console of the table found in the house of Cornelius Rufus, with its really fine design and delicate carving.

As much in regard to the practically fresh ground broken by the enterprise with which Mr. Briggs's work has been seconded, his book is likely to be one of the most successful and sought-for publications of its character and date. The production is in every way most creditable and satisfactory.

* *Baroque Architecture and Sculpture in Italy*. By Heinemann. London: William Heinemann, 1912.

* *Pompeian Decorations*. By R. A. Ruggles, F.R.I.B.A. London: E. T. Batsford, 1912.

BUILDERS' OBJECTIONS TO FOURTEEN-INCH WALLS.

In the Gateshead Town Hall an inquiry was held on Tuesday on behalf of the Local Government Board, by Mr. W. H. Collin and Dr. R. W. Johnstone, under the Housing and Town Planning Act, 1909, into complaints which had been made that the erection of dwellings for the working-classes within the borough was unreasonably impeded in consequence of a by-law which demanded the use of the walls of domestic buildings.

Mr. Ashburne, the town clerk, appeared to defend the retention of the present by-law, which demands 14in. thick walls, and Mr. J. A. Dixon represented complainants (mainly builders), who desired the right to build houses with 11in. walls.

The application was in respect to an uncompleted by-law made in 1880, the present by-law for the building of new streets and buildings having been passed in October, 1911.

For the complainants, Mr. Dixon said that they had several reasons for asking to be allowed to build 11in. hollow walls in working-class houses. In the first place, it meant less cost of building, and they estimated that on a house costing £500 they could save £15 to £20 by the use of the 11in. hollow walls. It also gave more floor space, the temperature was more uniform, and the house was drier. The model by-laws permitted 11in. hollow walls, and they were also allowed by the town councils of Newcastle, Chester-le-Street, and Felling.

A number of builders attended and gave evidence for the complainants.

The borough surveyor, Mr. Pattinson, said that hollow walls required much more careful building than solid walls, and it was essential that the jointing should be good. The builders that morning had contended that 14in. walls tended to dampness. He did not know there were so many damp houses in the town. He should say that all of the dampness arose from bad jointing. In the hollow walls the heavy rains drove into the cavity. In Gateshead they had had for thirty years a law allowing 10in. hollow walls, but builders had not availed themselves of it. Cavity walls were extremely difficult to inspect, and there was great lack of stability. On instances which he had worked out, the only saving in building expenses was £3 1s. 4d. per flat. He would by no means in Newcastle to permit 11in. cavity walls.

Dr. Thomas Morrison Clayton, the medical officer of health, said that in his opinion hollow walls had many advantages. Such walls were much drier, if properly constructed, so that the moisture could drain off. The dampness within should never exceed the size of dewdrops. They also resulted in cooler houses in summer and warmer in winter. What he would wish to emphasise most was the necessity for a properly constructed damp-proof course.

In reply to a question from one of the inspectors respecting phthisis, the doctor said that as a result of investigations which he was carrying out at the time, there was an undoubted decrease in fatal cases of phthisis had given way to an increase in fatal cases of bronchitis and pneumonia.

At a special meeting of the Chester-le-Street Rural District Council held on Friday, out of 91 candidates, Mr. E. Graham, of Jarrold, was appointed assistant surveyor and draftsman.

The Great Western Railway Co. are proposing to divert Wood Lane, a ten-foot wide road, for the construction of the recently authorised Exaling and Shepherd's Bush Railway, and the London County Council has therefore agreed to divert the tram-lanes at a cost of £4,500, a sum which will be ultimately recouped by the railway company.

At Tunbridge Wells, the corner hoistery known as the Railway Bell has been demolished to make way for a new red-brick building uniting the drapers' premises of Messrs. Weekes & Mount Pleasant and Grove Hill-road. The new building has been erected from designs by Mr. Egbert Cronk, of Tunbridge Wells, Messrs. Strange and Sons of that town being the contractors.

OBITUARY.

We regret to announce the very sudden death, in his eightieth year, of Mr. Charles Smith, J.P., F.R.I.B.A., head of the firm of Messrs. Charles Smith and Son, of Friar-street, Reading. Mr. Smith, who was a senior magistrate for the borough, died with tragic suddenness on Tuesday morning, when about to take his seat on the Bench at the local police-court. Mr. Smith was ex-mayor of the borough, ex-chairman of the local Brewster's Association, a Liberal and Non-conformist, and a prominent Freemason. He joined the Royal Institute of British Architects as an Associate in 1854, and had been a Fellow since 1870.

Building Intelligence.

BRISTOL.—Messrs. H. J. Packer and Co., Ltd., chocolate manufacturers, are building at Greenbank a workmen's residence hall. The exterior is to be of brick, with a slated roof, and the woodwork is to be painted white. The building is divided into two stories. The lower one contains a refreshment-room, with offices adjoining; here also is a billiard-room, and near at hand are a ladies' room and card, chess, and committee-rooms. The second story is wholly taken up by a concert-hall and the rooms connected therewith. The building is to be erected from designs furnished by Messrs. W. C. Paul and R. C. James, of Nicholas-street, Bristol, whose plans were chosen in an open competition.

CORRIS.—A public institute is being built in the picturesque village of Corris, Merionethshire, at the sole expense of Mr. Howell J. Williams, J.P., L.C.C., the well-known London builder. The style of the institute is half-timber, local stone being used for the walls. The architect is Mr. D. O. M. Roberts, M.S.A., of the firm of O. M. Roberts and Son, Portmadoc, and the contractor is Mr. J. H. Roberts, Pwllheli.

DAWDON.—The new church of St. Mild and St. Helen, erected at Dawdon, Seaham Harbour, will be consecrated to-morrow (Saturday) by the Bishop of Durham. The church has been built at a cost of about £6,500. The building is Romanesque in style, and has been constructed of red Lincolnshire bricks, with a sparing use of red stone for dressings. Accommodation is provided for 620 worshippers. The work has been carried out by Messrs. John Clark and Sons, of New Seaham, with Mr. A. Gordon as clerk of works, from the designs of the late Mr. C. Hodgson Fowler, F.S.A., under the supervision of his successor, Mr. W. H. Wood, F.R.I.B.A., of Durham and Newcastle.

EDINBURGH.—The Edinburgh Nursing Home Trustees propose to convert three adjoining houses in Chalmers-street, Edinburgh, into a nursing home. The adopted plans for the reconstruction of the property were prepared by Mr. T. D. Rhind, architect. Rooms for patients to the number of about fifty are arranged on three floors, served by a bed-lift, which rises from the basement to the top of the building. Two of the rooms are set aside for single patients. There is also a nursery for children. Service kitchens are provided on each floor, which are in communication with the general kitchen in the basement.—The Ice Rink in the Haymarket was opened by Lord Balfour of Burleigh on Saturday last. The hall has an internal measurement of 220ft. in length, with a breadth of 120ft., and a height to the roof, which forms an elliptical arch, of 38ft. The ceiling is of plaster, and is divided by bands into seven bays, in the centre of each of which is a ventilator grill. The installation of freezing machinery consists of ammonia compressors with brine circulation through continuous lines of steel tubing laid on the insulated floor of the rink. There will be on the floor a sheet of ice of from 5in. to 6in. in thickness. The construction of the rink and the provision of the machinery have been carried

out by Messrs. W. M. Anderson and Co., engineers, Glasgow. The cost of the building and machinery has been £18,000.

LEISTON.—A new elementary school has been built at Leiston adjoining the Haze School. The new school, which is of red brick, with sand-faced the roof, consists of seven classrooms, accommodating 300 children, with assembly-hall, 40ft. by 20ft. 6in. The plans were prepared and the erection of the building superintended by the architect to the building committee, Mr. J. Webb. The contractor for the building, which has cost about £3,000, was Mr. A. Gibbons, Crowfield.

OXFORD.—The foundation-stones of the new buildings of Ruskin College were laid yesterday (Thursday) by Mr. Sydney Buxton, M.P., Mr. C. W. Bowdler, M.P., Chairman of the College Committee, Mrs. Grafflin, and Miss M. P. Giles. The college has received promises of further donations amounting to nearly £1,500, but a sum of £4,000 is still needed. The buildings will be of brick with stone facings, and the frontage to Walton-street will be of a simple character, with a main entrance gateway. There will be a hall, to be known as the Buxton Memorial Hall, in memory of the late Mr. C. S. Buxton, formerly vice-principal of the college, who bequeathed £5,000 to the college; a lecture-room, bed-sitting-room accommodation for fifty students, office accommodation, and vice-principal's residence. Mr. Basil Champneys, B.A., is the architect.

Mr. G. Palmer, assistant to the county surveyor of Middlesex, has been appointed divisional surveyor in No. 1 district by the Cornwall County Council at a salary of £150, rising to £175 per annum.

A gymnasium has been added to the Female Masonic School, at Balis Bridge, Dublin, from plans by Messrs. J. Kaye Parry and Ross, of Dublin. The builders were Messrs. J. and R. Thompson, Ltd., of Fairview.

The city council of Winchester have raised the salary of their sanitary inspector, from £800 to £850 per annum, in consequence of the additional duties placed upon him under the Housing and Town Planning Act.

The Hendon Urban District Council have decided to erect a fire-station on a site adjoining the municipal offices at a cost of about £6,000, the selected design being that of Mr. H. A. Welch, architect, of Golden Square.

A Masonic lodge is to be erected at Penryn. The floor will be in reinforced concrete, on which will be laid wood blocks or composition. In addition to the lodge-room proper, which is on the first floor, and will have the usual Masonic fittings, a banquetting-hall is to be provided, with waiting-rooms and lavatories attached. The architect is Mr. J. P. Jenkins, 15, Parade-chambers, East-parade, Sheffield.

The preservation works of Winchester Cathedral, which have been for many years in progress under Mr. T. G. Jackson's supervision, will be completed at the close of Easter. Banqueting services are to begin on July 14, and to continue for the following seven days. The works have cost altogether £112,950, of which £3,000 remains to be raised. The contractors have been Messrs. Thompson and Son, of Peterborough.

At a meeting of the Birmingham City Council on Tuesday, it was announced that Mrs. M. E. Rickards had presented to the Art Gallery, in memory of her late husband, Dr. Rickards, two valuable oil paintings—"A Recollection of Venice," by James Holland, and "The Wendcliffe," by David Cox. The gift also included a silver Queen Anne tankard and a George the Third silver coffee urn. The pictures will form part of the collection which will be hung in the new Art Gallery, which it is hoped will be ready for opening in June.

A power station has been built at Leith Docks, and the plant installation is now being completed. The station occupies a central position in the docks, has an area of 90ft. by 36ft., and is constructed of red brick with stone facings. The motive power is by two gas engines, and an auxiliary plant. There are two engines, each of 450H.P., and three gas plants. Both the generators to be used with the two gas engines are supplied by Messrs. Bruce Peckie and Co., Ltd., Edinburgh, and are of the 200kw. type, and will be running at the engine speed of 300 r.p.m.

Our Illustrations.

R.L.B.A. SOANE MEDALLION COMPETITION, 1912. THE TWO PRIZE DESIGNS.

As already explained, the Council, being unable to award the Medallion in this year in this competition, no one design being considered equal to the occasion, decided to give two each to the two competitors, and "Circle City" for three months' travel. The author of the design marked "Circle City" writes the following note of his scheme: "A building in a park demands an open plan, and, having settled the general lines of this particular scheme, it became clear that some sacrifice of convenience had to be made. Hence the "skying" of the committee rooms and the shape of the service rooms. The main entrance hall gives access to the three main apartments of the building. The large hall is marked, externally, by the dome, and the small hall and banqueting hall by the side wings, which differ in architectural treatment from the main building. The setting of the building in the park was shown on a block plan; the road mentioned in the conditions is considered as the boundary of the park, while the main avenue in the park, outside the main hall, is the 'Circle City.' The side wings of the subordinate roads and paths terminates in the dome. Mr. William Friskin, now of Kensington, the author of this design, is a past student of the Glasgow School of Architecture.

The second design, here shown, and distinguished by the motto "Ante," is the work of Mr. Piet de Jong, of Leeds, who sends us these particulars of his design: "In laying out this scheme I have endeavoured to produce a plan which, while being symmetrical, would, at the same time, provide 'spacious' hall, vestibule and corridor space' for the different rooms on each floor without being wasteful. Thus at once suggested the main entrance hall with its three distinct entrances placed directly opposite the two staircases, and the foyer which gives access to the guildhall. 'The guildhall, to seat 1,200 on the ground floor, with additional accommodation in the galleries' is square in plan, and gives the centres for the axes on which the plan is worked. It is provided with retiring spaces, approached through exits located under the galleries, which are masked by screen walls, thus keeping the hall quite cut off from the corridors. These retiring spaces are open to the corridor, from which are entered the cafe, lounge, and smoke room and committee ante-room, and which terminate in a small entrance hall, giving access to the building from the gardens in rear through a circular impluvium, on to which the cafe and lounge also open. The smaller hall, to seat 400, is placed so as to balance the suite of committee rooms, and is entered through its own vestibule and foyer from one end of the main entrance hall. On the first floor, over the entrance hall, is placed the assembly hall, approached by the three staircases and elevators, and gives access to the banqueting hall and reception rooms at either end. It is lighted by domes in each of its three bays, and immediately below them are three circular openings in the assembly hall floor, to light the vestibule on the ground floor. The galleries are approached from this first floor, one direct and the others by way of corridors. The entrance hall, in a small column is intended to be used as the adjacent gallery from the reception hall. The reception room is provided with an ante-room at each end, one leading to the elliptical lounge and the other acting as a turning chamber from the hall. Like the banqueting hall, it has its own private toilet place on a floor above, entered by a meeked door in the ante-room. At the end of the banqueting hall, the service of each kitchen is situated on the top floor. With regard to the exterior I have endeavoured to introduce a simple and refined Greek feeling, and to obtain a richness with mass of form and horizontal lines, rather than with elaborate detail. I decided on a Caryatid portico,

the figures being the same height as the interior first floor columns, and having pedestals corresponding to the height of the ground floor rooms; thus the divisional line is uniform inside and out. This treatment has been applied consistently throughout, and any deviation from the unbroken horizontal lines has been due to the requirements of the plan. The interior has the same treatment as the exterior, except being somewhat richer in detail. The layout of the ground was suggested by a desire to keep the building in perspective while approaching along the main entrance roadways, which are supposed to run along the contour, whereas from the central or lake approach the building would be seen closing the vista through an avenue of trees and at a considerable height above the spectator. The pressure of space obliges us to hold over one detail and first-floor plans of these two designs.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS: PUGIN TRAVELLING STUDENTSHIP PRIZE DRAWINGS, 1912. BY MR. JAMES MACGREGOR.

Last week we gave Sheet No. 1 of this year's Pugin Prize drawings; to-day we devote a double page to Sheet No. 2 of the same set, by Mr. James Macgregor, who has sent us the following descriptive notes: "The south-west corner of the cloisters is all that remains of Machelney Abbey, founded in the 10th century. Abutting on this cloister, and with an entrance from the strand, what is called the Abbot's House, built towards the end of the 15th century. The western part of the house has suffered from later alterations, and there are indications of other apartments having been on the north side. The eastern wing contains the most interest. It is in two floors; the upper story is reached by a straight flight of stone stairs. In an upper room, called the Abbot's Parlor, is a fine stone chimneypiece and an oak window-seat with linen panels and a traceried cresting to the high back. A design of a crouching lion appears in different parts of the house. The charm and beauty of this exquisite Tudor building, standing amid its 'old world' surroundings, must appeal to every lover of the beautiful.—The Gateway at Montacute, shown in the sketch, is the only fragment now left standing of the once noble 'Priory of Montacute.' It was built in the first half of the 16th century. On this, the south front, are two octagonal turrets, the higher one giving access to the room over the gateway. Between them and above the arch is a corbelled-out oriel, enriched with bands of tracery. Over the entrance is a simple fan vault.—The Chain Gate, Wells, was built by Bishop Beckington (1443-1466), in order to protect the vicars from bad weather conditions when passing between their lodgings in the Close and the Cathedral. It was an unusual problem for the Gothic builder to tackle, and well relays the student who gives it a little study. One of the stone chimney-heads from a house in the Close is shown in this plate.—The Priests' House stands on the south-west side of the courtyard of the manor-house of Pympton d'Evereey. It is a single-story building with a central octagonal turret on the courtyard side, containing a stair which gives access from the outside to the upper floor. In one room is an early example of a plaster ceiling and modelled frieze. The roof is original and is of chestnut. Sketches of the fine Font at Queen Camel and of early Houses at South Petherton and Glastonbury are shown, the last named showing some interesting hut-tress treatment.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE ARTHUR CATES PRIZE DRAWINGS, 1912. BY MR. JAMES PERTIE FRANCIS COWPER.

The subjects on this sketch form one of the series of evidences of study for which this prize was awarded this year to Mr. Cowper, Pugin Student, 1911. The Tower of St. Mary's, Peverley, is a very good Perpendicular example, and in the arrangement of the battlement and pinnacles resembles the tower of St. Augustine's, Hedon. The single

helfry window at Beverley is very suitable to the breadth of the tower, while the pair of longer ones at Hedon give a better impression of lightness. In both these towers the balance of wall surface and openings is well managed, and the stair-turrets add considerably to their picturesque grouping.—St. Patrick's, Patrington, well known as the most beautiful cruciform Yorkshire church, remains almost as it was originally finished, and, fortunately, the work has not suffered through restoration. The absence of a clerestory and the steep pitch of the roofs, leading up to the finely-proportioned tower and spire, form an uncommonly fine and very graceful group. The arcaded octagonal stage connecting the tower and spire is interesting, but the flying buttresses at the angles are so small, are very weak, and look trifling.—Some drawings and description of the beautiful little chapel of Kirkstead, St. Leonards, appeared in the *Building News* on February 25, 1910. J. B. F. C.

STATUES, MEMORIALS, &c.

THE CENTENARY OF WATERLOO.—The committee formed under the presidency of General Cassin, of Henrich to arrange for the celebration on June 18, 1915, of the centenary of the Battle of Waterloo, has decided on the construction of a mausoleum at Plancenoit or Braine l'Alleud. The memorial, according to the design which is to be submitted for final decision to a council of British, German, Dutch, French, and Belgian artists, will consist of a mass of dark porphyry on which the principal group, carved in white marble, will stand out in relief, with bronze figures around it representing the various nations. All the bones found on the field of battle will be laid within this mausoleum. All questions as to the centenary should be addressed to Mr. Toulon, general secretary of the Belgisch Comité, at Guilla de Store, Ixelles, Brussels; or, if concerned particularly with England, to the delegate for Great Britain, Byron Gaetan du Vriere, 18, Rue de Toulouse, Brussels.

The salary of Mr. Alex. Ynail, gas manager to the Dundee Corporation, has been increased by £50 per annum.

The urban district council of Anfield Plain have approved an estimate of £15,540 for the erection of 60 houses.

Mr. J. T. Blackwell, of Kettering, has been appointed architect by the Northants Education Committee for the special instruction centre at Desborough.

A sub-committee of the town council of Edinburgh has approved and recommended for adoption plans by the city superintendent of works for a new market hall, to be erected on the site of Inverleith House, Portobello, at an estimated cost of about £25,000.

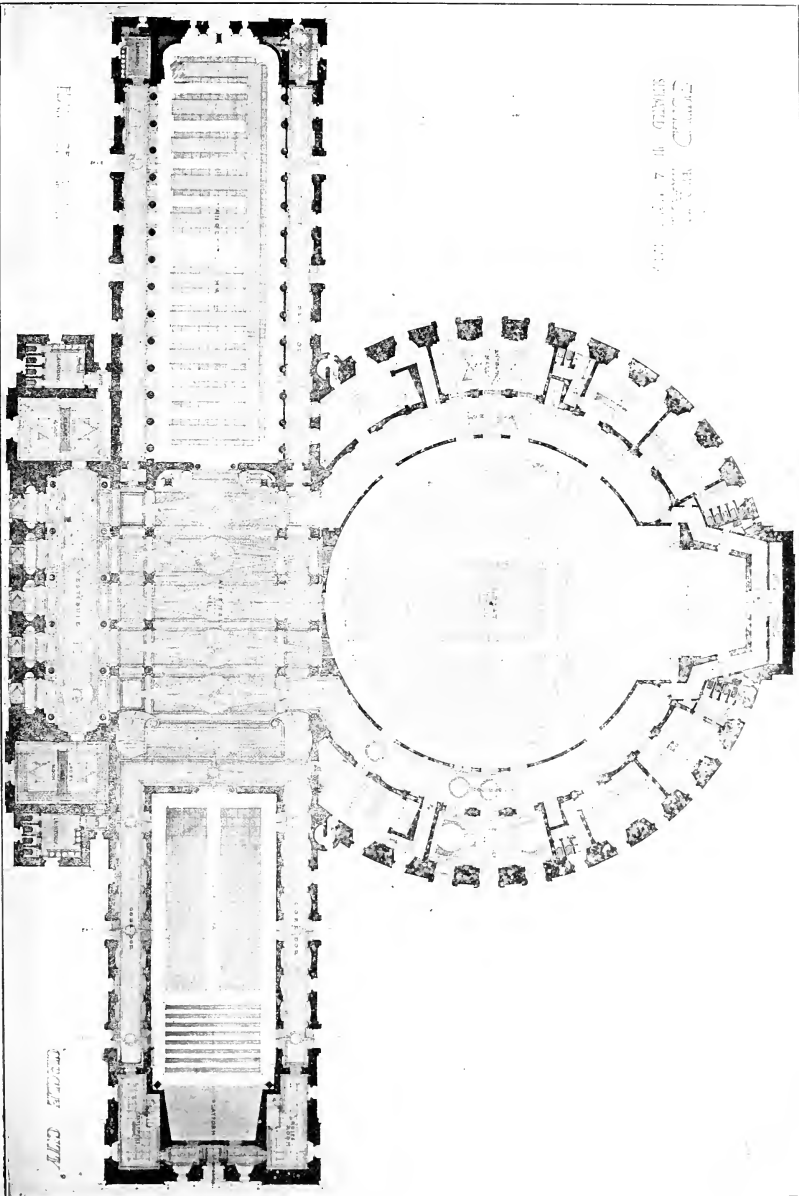
Montrose Harbour Trustees approved unanimously on Monday of a scheme submitted by Mr. J. Hammy Thompson, Dundee Harbour Engineer, for the reconstruction of the fish quay with ferro-concrete and timber fenders at an estimated cost of £4,750.

Llanafawr Church new hall was opened on Wednesday week. The institute, 36ft. by 18ft., was built by Mr. Robert Meredith (Builder Wells), and from a design prepared by Captain J. Vaughan, architect, Brynwg, Cardiganshire. Adjoining the hall is a cottage.

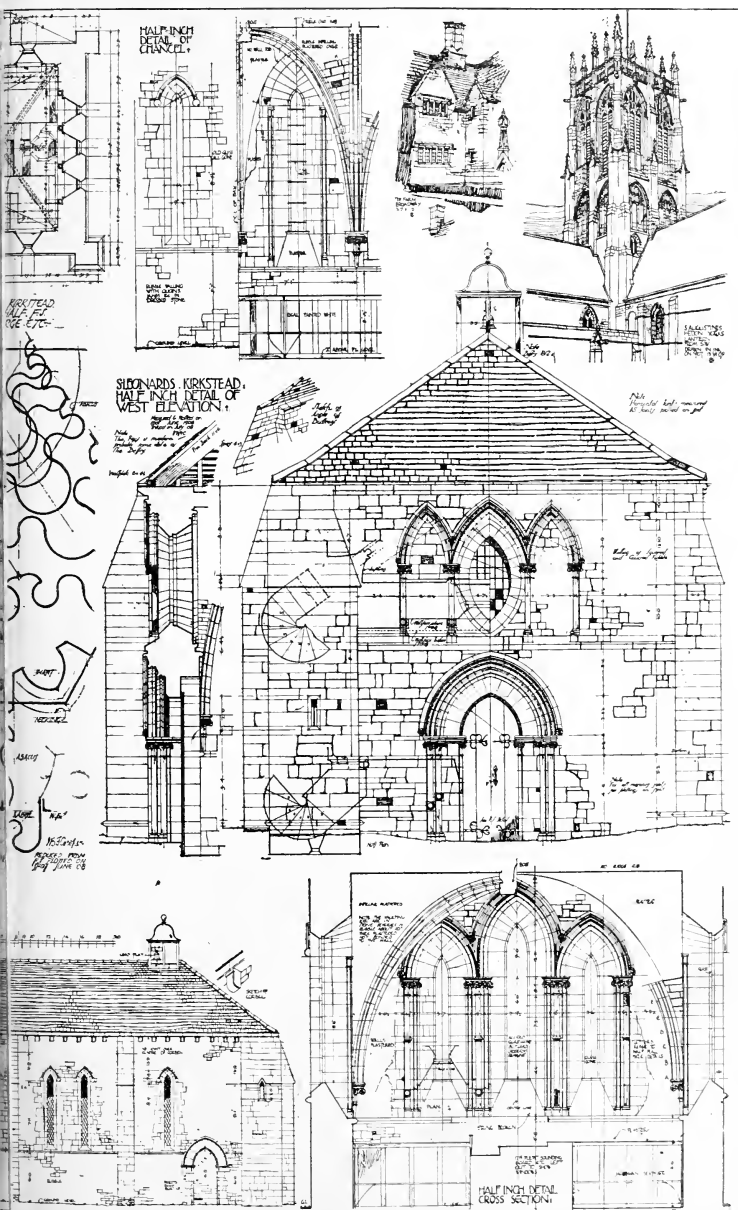
Sir William Ramsay, speaking at a public dinner on Saturday, intimated that the Royal Commission on Sewage Disposal would shortly issue their final report. The principal recommendation would be that there should be formed a permanent body—a sort of central board—which should regulate not merely the disposal of sewage, but also the appropriate subject of the water supply of the country.

A parish-race, which has been provided at Canon Pyon, as a memorial to the late Mr. R. H. Perival, a son of the Bishop of Hereford, was opened by the Dean of Hereford on Thursday last week. The main walls of the hall are of brick, covered with Brownian tiles, and under the eaves, been introduced in the proportions, having plastered panels of cement, in keeping with the old work in the village. The main room measures 56ft. by 23ft., including the stage. There are also a committee-room, 16ft. by 10ft., a kitchen, 12ft. by 10ft. Mr. Herbert Skyrme, architect, of Walsworth-street, Hereford, prepared the plans and supervised the work, and the contractor was Mr. Charles Cooke, of St. Owen's-street, Hereford.

STATION
STATION
STATION



9.-FEB. 9, 1912.



F. HUR CATES PRIZE—FORTY GUINEAS, 1912.
 CUPPER (Pugin Student, 1911).

PROFESSIONAL AND TRADE SOCIETIES.

ARCHITECTURAL ASSOCIATION OF IRELAND. The fourteenth annual report of the committee, that for the session 1910-11, states that the total membership now stands at 12 as against 89 at the close of last year, being an increase of three. Owing to a dearth of students in Dublin it was unfortunately found impossible to carry on any of the classes this year, and under these circumstances the exhibition of students' work was also abandoned. A number of manufacturers have availed themselves of the facilities afforded them by the Technical Museum for exhibiting their goods, and have thus added to its interest and utility, the present display of modern building materials being very representative. The annual excursion which had been arranged this session to Oxford had to be abandoned owing to the fact that several who intimated their intention of joining the party were at the last moment prevented from doing so. Four designs were submitted for the Institute Prize, being an increase on last year; only one for the President's Prize and Downes' Bronze Medal, and none submitted in the Vice-Presidents', Reilly, or poster competitions. The following awards were made: Institute Prize, Mr. P. J. Munden winner, Mr. G. C. Ashlin judge; Downes' Bronze Medal, Mr. W. W. Keatinge winner, Mr. F. G. Hicks judge; President's Prize, Mr. Cyril Keefe.

"THE ARCHITECTURE OF STAMFORD."—A meeting of the Leicester Society of Architects was held in the society's rooms, in St. Martin's East, Leicester, on Friday evening. The president (Mr. W. M. Cowdell, F.R.I.B.A.), was in the chair. A lecture on "The Architecture of Stamford" was given by Mr. H. P. Traylen, A.R.I.B.A., who, after giving a brief introductory history of the town, dealt with the twelfth-century architecture drawing attention to important points of development. He then went on to speak of characteristic thirteenth, fourteenth, and fifteenth-century work, and also examples of Tudor, Queen Anne, and Georgian houses, almshouses, and other characteristic local work. The lecture was illustrated by a number of lantern-slides, including a number of views of Burghley House. A vote of thanks was accorded the lecturer, on the motion of Mr. S. Perkins Pick, seconded by Mr. B. J. Fletcher, headmaster of the School of Art, and supported by Ald. A. E. Sawday, Mr. Herbert, and the president. In responding, Mr. Traylen expressed his willingness to give to the society a number of the architectural drawings of the late Mr. F. W. Ordish, with whom his father was formerly in partnership.

GUILD OF ARCHITECTS' ASSISTANTS.—The annual report of the guild for 1910-11, which the committee has adopted, states that the guild has now co-opted the following members: Messrs. J. H. Chandler, A.R.I.B.A., S. Douglas Topley, A.R.I.B.A., and J. C. Winfield. During November, 1910, and March, 1911, the following proposals were made by the Guild to the Royal Institute of British Architects and the Society of Architects for their consideration in framing the proposed Registration Bill: (1) Registered practitioners to be divided into registered men as assistants; (2) restriction of the number of pupils and unpaid assistants in a registered practitioner's office; (3) to legalise a scale of salaries for assistants, subject to approval of registration or other agreed authority; (4) that the general provisions of the Bill should offer greater security to the pupil by surveillance of his progress on request, and ease of appeal to the registration or other agreed authority by his parents or guardians when necessity demands; (5) that the present position of the assistant in relation to open competitions be retained. This is the first occasion on which any definite proposals regarding the pupil and the assistant have been made to the two premier architectural societies. The Council warn all assistants that the prevailing anxiety with which the registration proposals have been received by the profession, and especially by assistants, provides a good reason for their possible appearance in law by the consequent removal

of a large number of awkward objections. Assistants should be sure that the resulting Bill represents and protects their interests.

The Council regrets the conditions proposed for the amalgamation of the Royal Institute and the Society of Architects, "causing, as they do, considerable indignity and acute jealousy amongst all concerned." It is believed by the Council that better conditions of professional unity could have been formed by the creation of a Joint Board. As to the National Insurance Act, the Council point out that it is the architect's legal duty to pay the profession to pay the full salary to an assistant during sickness, whereas the proposed employers' contribution will provoke the discontinuance of this customary benefit, leaving the assistant with the State allowance only, and taxing him with the necessary premium to obtain it. Assistants are requested to formulate their grievances and send them to the Council of the Guild, who will obtain the best legal remedy available for the benefit of members. In January, 1911, a difficult case of alleged unlawful dismissal was dealt with by the Council, involving the question of the legality of radius agreements, which are commonly imposed in provincial practice. The Council obtained advice, and discovered that these agreements are legal. The Council regrets the tone of the "Notes on the Changes in the R.I.B.A. Examinations," which appeared in the R.I.B.A. Journal, and was evidently endorsed by the Board of Architectural Education. The special attention of members is drawn to the Employment Bureau, of which Mr. J. F. Burkinshaw, Licentiate R.I.B.A., 19, Craven-street, Strand, W.C., is the hon. secretary. The Council, in conclusion, desire to impress their fellow-members with the fact that an increased membership is necessary to render the Guild's proposals more effective. Appended to the report is a special note on fixing a scale of minimum salaries, adopted by the Council on December 17, 1911. In this the necessity for establishing a scale is emphasised, and it is pointed out that no difference is made in the present average salaries between assistants possessing examination qualifications and those without them. The present average salary at the ages of 19 to 21 is 21s. per week; at the ages of 21 to 25, 31s.; at the ages of 25 to 30, 49s. 3d.; at the ages of 30 to 40, 61s. 8d.; and at the ages of 40 and over, 65s. The Council suggest this should be raised for a working week of thirty-nine hours as follows: Improvers, 19 to 21 years of age, 25s. per week; assistants, 21 to 25, 35s.; 25 to 30, 50s.; 30 to 40, 65s.; and 40 and over, 70s.

LIVERPOOL ARCHITECTURAL SOCIETY.—On taking the chair at the fifth sessional meeting of the Liverpool Architectural Society on Monday evening, Mr. A. Thornley (president) reminded the members of the invitation of the Birmingham Architectural Association to inspect the new Art Galleries at that city on the 23rd inst. He called upon Mr. Herbert L. North to read a paper on "The Old Buildings of Snowdonia." The lecturer, having remarked that the simple types of building in Snowdonia have been with the earliest and capable recommended visits to North Wales in winter, the aspect of the country being at present glorious. He proceeded to describe the early and square Celtic churches, and to trace the introduction of chancels by the Latin monks, after which he illustrated the development of domestic architecture.

A Local Government Board inquiry has been held at Exeter into an application of the corporation for sanction to a local authority extension of the infectious diseases hospital at Whipton. Mr. T. Moulding, the city engineer and surveyor, has designed the plans.

At Maulden, Beds., the Duke of Bedford has established at a cost of about £5,000, several small holdings on an ownership scheme of repayment in 30 years. The holdings are mostly in crooked timber, with Lincolnshire pantile roofs, with houses suitable for working farmers on 40-acre holdings, and have been designed and carried out under the direction of Mr. H. C. Stanger, N.E.A., Bedford, and William Sands, the timber builders were erected for 3d. per ft. cubic.

COMPETITIONS.

BIRMINGHAM BLUE COAL SCHOOL.—A preliminary architectural competition, announced strictly limited to 10 Birmingham architects, has been held for the school to be erected upon land situated between the Warwick road and the Great Western Railway Co.'s line at Olton. The Governors have appointed Mr. G. H. Hunt, F.R.I.B.A., 3, Raymond buildings, Gray's Inn, London, as assessor, to act with Mr. Charles E. Bateman, F.R.I.B.A., their hon. consulting architect, and draw up these conditions and the floor plan as the design submitted, and it is their intention to follow such advice unless there is some grave reason to the contrary. Three designs will be selected, and the authors will be paid £50 each to develop and redraw their plans to a larger scale, showing further details. In the event of the governors failing to proceed in the second competition, the authors of the three designs will be paid £25 each. In the event of the governors failing to proceed with the second competition nor receiving instructions to proceed with the working drawings within two years from the date of the award he shall be paid a further sum of £100 in settlement of all claims. All premiated designs shall belong to the governors. The author of the selected design in the second competition will be retained as architect for the new school buildings, and shall perform the duties and be paid in accordance with the scale of fee-sanctioned by the Royal Institute of British Architects, and his appointment will be the subject of a legal agreement. Designs are to be sent in by April 20.

DESIGNS FOR MURAL PAINTING.—The committee, of which Mr. D. S. MacCoo is chairman and Mr. Charles Aitken and Mr. Wilfrid Walter are joint hon. secretaries, formed to promote the practice of mural painting in schools, churches, hospitals, and other public institutions, more especially in young artists and students, scheme long ago propounded by Mr. Watts, will hold a competitive exhibition of designs at Crosby Hall, Chelsea, in the latter part of May. Several schools and other buildings have already offered wall-spaces for experimental treatment, and designs from the exhibition will be selected to be carried out in these spaces. Subscriptions may be sent to the hon. treasurers, Mr. John B. B. at Crosby Hall, Cheyne-walk, Chelsea, and information obtained from the hon. sec., at the same address.

HASTINGS.—The King Edward VII. Memorial Fund Competition award of prizes has now been determined for the new building as follows:—First, No. 6, Messrs. John Saxon Snell and Stanley M. Spoor (jointly), 37, Maidland, London, W. Second, No. 9, Messrs. C. K. and T. C. Mayor, 41, John Dalrymple-street, Manchester. Third, No. 31, Messrs. Adams and Addis, 10, New Street, Reading. Fourth, W.C. The referee was Mr. Edwin T. Hall, F.R.I.B.A. All the drawings in the competition will be publicly exhibited in the Drill Hall, Middle-street, Hastings, from Tuesday to Saturday in next week. The hours will be from 10 a.m. till 5 p.m., and on the closing day (Saturday, the 17th inst.) from 10 until 7, the aim of the committee being to give ample opportunities for inspection of the designs to those who may wish to be free at the end of the week.

STAFFORD FREE LIBRARY.—The plans for the proposed Carnegie Library at Stafford will be exhibited for public inspection at the borough hall to-day (Friday) and to-morrow (Saturday). Mr. H. T. Hare, F.R.I.B.A., the architect for the County Council Buildings at Stafford, has adjudicated upon the 210 plans which have been sent in for the library, the cost of which is limited to £4,000. The design placed first by Messrs. Briggs, Volstenholme, and Thornley, 51, North John-street, Liverpool, second, Messrs. Burton and Gregory, Promley House, Angel-row, Nottingham; third, Messrs. Castle and Warren, Talbot House, Arundel-street, London, W.C. Probably on few competitions for so small a sum has so much labour been expended.

Correspondence.

THE POLICY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

To the Editor of the Building News.

SIR, Your correspondent, Mr. Gammell, is, of course, entitled in a way to comment upon the verdict of the business meeting held at the Institute of January 8, in so far as the report of the Council was referred back for further consideration. Nevertheless, those who happen to differ from the conclusions urged by him and by his companions were precluded from having an opportunity for expressing the contrary view because the party who had whipped up the opposition to any concerted action in such a way, and so rapidly, one after another, as to give no one else a chance of a look in.

This was "good business" for them, I dare say, but the meeting was certainly mismanaged. To insure an impartial hearing for both sides, the obvious course would have been to require those who wished to speak to send up their names to the Chairman, leaving it to him to call alternately upon the representatives of each camp. Subsequently realising the result of such a want of forethought, and likewise the impossibility of disposing of so comprehensive a question after so brief and one-sided a discussion, the President proposed to adjourn the meeting, but the concert at once, with acclamation, demanded a vote being taken there and then. The technical right of the majority present thus to insist on this conclusion I do not dispute, but I must say the result was neither conclusive nor wise.

I know that many abstained from voting because the abstract of the draft for a Registration Bill was attached to the resolution as to the already agreed upon incorporation of the Society of Architects, and I know that some independent and thoroughly representative members besides myself had come prepared to speak in support of the proposition on the agenda paper; but no chance for their speaking was afforded.

The voting, such as it was, resulted not so much from anything said by either Mr. Perkins or Mr. Gammell as from the reasonable desire, so clearly put by Sir Aston Webb, to separate the two subjects, and thus to deal with coalition in the first place, and registration after. It resolved itself really, as Sir Aston Webb said, into a matter of terms. Only extremists wanted to wreck the project. Till these terms are disposed of it would be most unprejudiced to allow a verbatim report of this partial expression of opinion to go forth to the world as if it were the well-considered judgment of the general body of the Institute, and so prejudice what is still but justice. "T'est come le chien du jardinier."

I am not interested, and never have been, in the Society of Architects, but I do clearly see that it would be a great gain to the profession if both bodies could become one fold under one shepherd. (This happened in the "forties," when the old Society of Architects and Surveyors was incorporated in the R.I.B.A.) I am prepared to risk the chance of "black sheep," such as are to be found in every flock, and during my quarter of a century membership of the Institute I have known a few goatish ones—I am, etc.

ONE WHO WISHED TO SPEAK AT THE MEETING

Mr. H. P. Ploew has resigned his position as surveyor to the North Rural District Council.

A new Roman Catholic church and schools are being built on the Antrim road, Belfast, from designs by Messrs. L. and J. Byrne, of Waring-street, Belfast.

The City Council of Birmingham decided on Tuesday to make alterations and additions to the council house by raising a wall and a portion of the wall and roof of the east wing to provide a drawing office for the joint use of the city surveyor's staff, the public works department, and other departments of the corporation, at an estimated cost of £3,000.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply by any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasize this, as some correspondents regret the fact that queries want terse and not long essays. Any necessary illustrations must be in line only—no limits or washes and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesday.

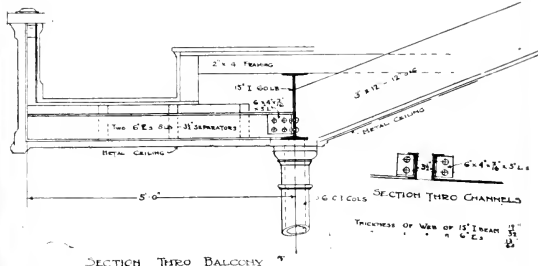
The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. G. H. Hindmarsh, L.R.I.B.A., Town Hall, Stockport.

QUESTIONS.

[19084.]—PAVING.—Will a reader give me specification for good granite concrete paving? Should sand be mixed with granite chips?—Bips.

[19085.]—TERRACE BALCONY.—I would like to obtain some help in the following problem. The section shows the front seats of the balcony of a



theatre, supported by cantilever channels framed into 14in. I gobs, per foot. The load on channels is based on live load of 110lb. per foot super. The uniform load on one pair of channels equals 4,000lb. Can you give me method of calculating strength of joints and connections, giving number of rivets and size of framing-angles, and also if bolts could be used instead of rivets through the web of the 14in. I beams?—Alfred Smith, Carrow Homesstead, Tampa, Florida, U.S.A.

[19086.]—STRESS DIAGRAM.—What is the simplest stress diagram of the enclosed sketch of a roof truss for a slated roof, and combining live and dead loads?



in the same diagram, and taking reactions parallel to wind-pressure, and supporting a plaster ceiling? Would it be correct to compound wind into a vertical load? If so, why is this not generally done by the authors of textbooks? I see it was done in an illustration in your last issue.—Vertical Load.

REPLIES.

[19084.]—TILED ROOF.—Show being one of the best tests as to the watertight qualities of a roof, the weakest spots have been indicated. Why not "pierce-up" with cement all these weak spots in a similar manner to the "pierce-up" of a stone-tiled roof? This method should not prove costly. Forcing, under these circumstances, would not be any too good for the roof timbers, keeping them practically always damp; and likewise vegetation is

not a good sign, indicating rather the porosity of the tiles.—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

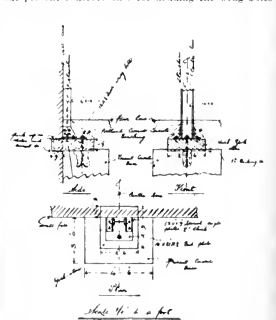
[19085.]—TILED ROOF.—After a recent heavy snow-storm a newly-tiled roof is said to be leaking. Should anything be done to remedy it? Not at present. The so-called "leaking" is no doubt due to fine snow drifting into the roof and then thawing. A perfectly watertight roof will do this in certain circumstances. The roofing will, by ageing and vegetating, become quite "driftproof," as I have no doubt it is quite "rainproof."—Frank Wilson, 275, Nottingham-street, Sheffield.

[19086.]—TILED ROOF.—The doubtful saving of initial cost in works of a constructional nature is in most cases far from economical. The tiles, if new, may be more or less porous, and will probably "weather." Fine snow, falling during a strong wind or gale, is often blown under the tail of slates or tiles—that do not "sit close," or lie flat on the one underneath, and will blow in where rain could not. This, in the case of roofs not boarded or pointed underneath, is deposited over the top of cement and eventually comes into evidence as damp patches on the face of the ceilings. To have the whole of the under side of tiles well pointed, or "torched," with good horse-hair mortar is probably the best and cheapest remedy, under the circumstances.—J. G. Hindmarsh, L.R.I.B.A., Town Hall, Stockport.

[19087.]—RAISING WATER.—Mr. E. V. King had better write Messrs. R. Richards and Co., Upper Ground-street, S.E., who will probably be able to fix him up with something on the lines of their automatic sewage lift. For a description of this lift, see Mr. A. T. Middleton's book on Drainage (latest edition, where it is fully described.—Frank Wilson, 275, Nottingham-street, Sheffield.

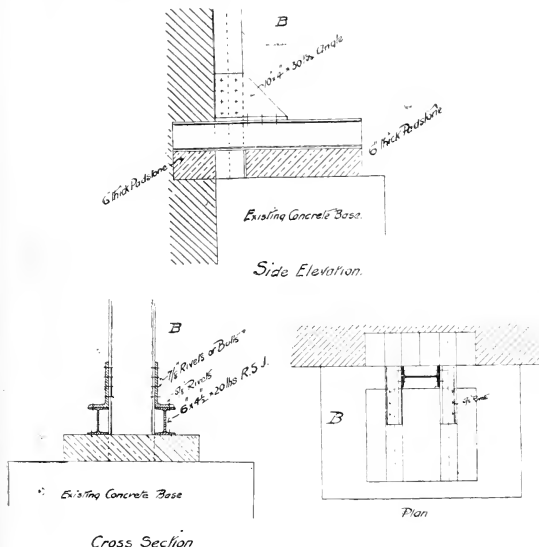
[19088.]—CEMENT-CONCRETE BASE FOR R.S. STANCHION IN WRONG POSITION.—The drawings submitted herewith show a method of transmitting the load from stanchion to centre of existing concrete base. It is possible, tail the York stone into the

old wall as shown. I have also suggested concrete benching as a protection to steelwork at base. Hack out present concrete base for bedding the wrag bolts



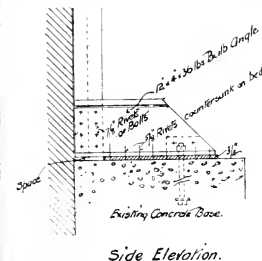
in same, and fill in as defined on drawings.—A. H. Winterhous, M.S.A., 147, Newcastle-avenue, Workson, Notts.

[19089.]—CEMENT-CONCRETE BASE FOR R.S. STANCHION IN WRONG POSITION.—Under the circumstances, the stanchion must be treated as having an eccentric base or foundation. A stanchion cannot be regarded as centrally loaded, even if the load is applied directly over its axis, unless the foundation is symmetrical and the base-plate projects equally on opposite sides. Owing to the proximity



of the existing wall, the base-plate must project to one side, and bending stress will be induced in the stanchion. If the stanchion has been calculated for an eccentric load, the base-plate should have the same amount of eccentricity—i.e., the centre of the

special nature has been introduced. The alternative scheme, B, is applicable only if the existing wall is strong enough for the purpose and circumstances will



allow it to be utilised.—J. G. Hindmarch, Lic.R.I.B.A., Town Hall, Stockport.

Mr. E. J. Harding, who has been clerk of the works at St. Paul's Cathedral for 37 years, retired yesterday (Thursday) owing to ill-health.

At the annual meeting of the Church House, held at Liverpool on Monday, the architect, Mr. George Braithwaite, of Cook-street, in that city, reported that the extension of the House is making good progress, and will be opened in November next. All the available shops and offices had already been taken by tenants. The cost of the extension will be £15,000, exclusive of furniture.

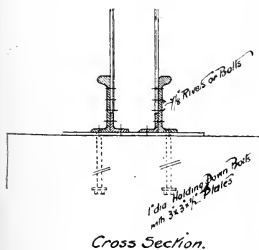
Mr. C. H. S. Gullen, architect, Aberlour, pleaded not guilty at Dunfermline on Friday to a charge of having trespassed in pursuit of Aberdeen, on the estate of Aberlour, of which Mr. David Cunningham, Dalachy, is the shooting tenant. The only witness for the prosecution was Walter Gray Cunningham, son of the complainant, Sheriff Cunningham convicted, and imposed a fine of £1, with £1 3s. 2d. of expenses, the alternative being five days imprisonment. An agent asked that a case be stated for appeal to the High Court.

LEGAL INTELLIGENCE.

BUILDING OPERATIONS IN PICCADILLY.—*Henry Atkin (Limited) v. Primos Hall Restaurant (Limited).* Mr. Justice Warrington heard on Friday a motion by Henry Atkin Limited, ginmakers of 41, Fenchurch-street, W., that the proprietors of the Primos Hall and Restaurant, Piccadilly, their contractors, servants, workmen, and agents, might be restrained by the order and injunction of the High Court, and judgment or further order, from excavating the soil under or adjacent to the east wall of the plaintiffs' premises so as to endanger the stability of the plaintiffs' wall or premises, or to cause any subsidence thereof, or from so building or so conducting their building operations as to endanger the stability of or injuriously affect the plaintiffs' wall or premises, or cause any subsidence. Mr. Justice Warrington, after hearing the arguments of counsel, granted the plaintiffs an interim injunction in the terms of the notice of motion over today (Friday).

CONVICTION OF AN ARCHITECT.—Before Judge Lumley Smith, K.C., at the Central Criminal Court on Friday, the trial was concluded of Cyril Frederick William Fryer, thirty-four, architect, a member of a firm carrying on business in Victoria-street, who was indicted for obtaining £46 by false pretences from Gertrude Amy Bartlett, wife of a tram conductor, living at Beaufort-street, Chelsea. Defendant, who pleaded not guilty, had been found guilty the previous week of obtaining credit to the extent of £120 without disclosing the fact that he was an undischarged bankrupt, and also of obtaining a motor-car by false pretences from the Brompton Motor Company. It was alleged that the defendant obtained Mrs. Bartlett's money on the false representation that he would invest it in a flourishing picture-palace business, as "The New Picture Palaces, Limited," representing that the company had acquired the Princess Hall, Kew Bridge, which he said was fully equipped. He also stated that Sir Valentine Grace was a director of the company. The case for the prosecution was that the company had not acquired the place indicated as Kew. Sir Valentine Grace had resigned his connection with the company many months before the prisoner's interviews with Mrs. Bartlett. The prisoner gave evidence denying the charge. He was found guilty, and received a sentence for fraud which was proved against him. He was sentenced to one month's imprisonment in the second division for obtaining credit without disclosing the fact that he was an undischarged bankrupt, to eight months in the second division for obtaining the motor-car by false pretences, and eight months in the second division for defrauding Mrs. Bartlett, the sentences to be concurrent.

PARTY-WALL DISPUTE.—ACTION AGAINST SIR JOHN WOOLFE BARRY.—In the Court of Appeal on Monday, before Lord Justices Farnell and Kennedy, the case of Minfurn v. Barry was heard upon the appeal of the plaintiff, Miss Minfurn, from a decision of the Divisional Court of King's Bench, refusing her leave to appeal. Plaintiff also applied for an extension of time in which to appeal, her time having run out.—Mr. Hudson, K.C., in support of the application, said the plaintiff, Miss Minfurn, was the freeholder of a house known as 14, Chelsea-embankment, which she had acquired some years ago. About the time that she acquired the house, she discovered that a wall at the rear of the house was very damp, and she endeavoured to put that right, but without success. This dampness caused injury to the health of her servants, and she then served a party-wall notice upon the adjoining owner, the defendant, Sir John Woolfe Barry. That was on June 22, 1910, and the notice was given under Section 88 of the London Building Act. The notice expressed the wish to excavate the defect by putting in some impervious material. It was found that the wet came into the wall from the defendant's side. The case then went in the ordinary course under the Act to two County Court judges, and then to a third, and the plaintiff then appealed from the decision of the third surveyor, who said that the wall was not defective merely because it was damp. From that decision the plaintiff appealed to the County Court, and there being a right of appeal under the London Building Act. In the County-court the defendant took the objection that the wall could not be held to be defective merely because damp, and the County Court judge declined to decide. From that decision the plaintiff appealed to the Divisional Court, where it was held that a party-wall could be defective because of damp, within the meaning of the London Building Act. The County Court judge then retried the case on the material facts. It appeared that the defendant had a creeper



base-plate should be directly under the load; but if the stanchion has been designed for a central load (which is not stated in the query), and it is desired to make the base-plate eccentric, its width should be extended to reduce the intensity of the stress on the edge nearest the stanchion. This is what has been assumed in the following details, and the calculations taken as follows:—Area of base-plate, 3ft. super.; taking a safe load on 5-to-1 concrete of 5 tons per foot super. = 40 tons; No. 16 rivets or bolts; safe shear 2.5 tons each 40 tons. (It would necessitate taking a few bricks out of the existing wall to set at the back of stanchion, and bolts would be used in these positions, and the brickwork made good on completion.) All the sections shown are stock sections, and nothing of a

Our Office Table.

growing on the wall which the plaintiff complained of causing dampness. The County-court Judge seemed to think the proper course to be preserved, and that the plaintiff ought not to do anything to it. Following some remarks made by the Judge in the Divisional Court of the question whether the plaintiff could be allowed to knock down the wall on the adjoining owner's side, the County-court Judge held that the previous history of the wall might be gone into. He said the County-court Judge then went into the history of the wall, when he found that originally the plaintiff's party wall was erected upon the top of, or embodied part of, the old garden-wall. He then said that if a building owner chose to make use of a wall such as a garden wall, which might have been quite sufficient for the purpose of a garden wall, he could not complain and say afterwards it was damp and defective, and that he could go on the building owner's side and remedy the defect. He made a certain order by which the plaintiff was precluded from going on the defendant's side of the wall, and doing something which it was impossible to do on the plaintiff's side. He said that the plaintiff could have an independent wall inside her house. Another alternative was that the plaintiff could cut the wall in two vertically, and put between the two halves of the wall an impervious centre. Lord Justice Farwell asked what jurisdiction the learned County-court Judge had for making such an order. Mr. Hudson said that his submission was that the County-court Judge had no jurisdiction to make any such order. He had no order in that the plaintiff was not to do any work upon the defendant's side. He contended that that was directly contrary to the Act. The object of the Building Act was the protection of the public health and the preservation of life. Of course, the plaintiff did not want to inconvenience Sir John Wode Barry. Lord Justice Farwell: We have only to do with people's rights. He and Lord Justice Kennedy both thought there was no jurisdiction in the County-court, and that the Divisional Court ought to have given leave to appeal. Leave to appeal would therefore be given. Mr. Hudson then contended that the plaintiff's time for appealing ought to be extended. What the plaintiff did after the decision was to employ a surveyor to go and see whether she could carry out the particular works, and it was thought that she had allowed the time for appealing to run out. It was the time for herself to be responsible for the delay. Lord Justice Farwell: If the plaintiff's time is she? Mr. Bliss, for the defendant, said that the plaintiff's time for appealing expired on December 22, and he contended that in the circumstances her time of appealing should not be extended. In the conclusion of the arguments, their lordships granted the extension asked for.

WATER SUPPLY AND SANITARY MATTERS.

TRURO SEWAGE DISPOSAL.—Mr. Frederick A. Barnes, Assoc. M. Inst. C.E., engineer and surveyor, has submitted to the town council his report on the scheme prepared by his predecessor, Mr. Moasham Lea, for the interception and disposal of the sewage of the city. He estimates the cost of the scheme at £22,655 as compared with the estimate of £12,655 in his report, and the cost of the scheme embodying the alterations he. Mr. Barnes recommends he estimate would be £20,851.

DISS. WATER SUPPLY.—The Diss Urban District Council, after a long and tedious waiting, have adopted the scheme of water supply formulated by Mr. W. H. Booth, C.E. Tenders have been accepted from about half a dozen firms for various portions of the work, including waterworks, tank, mains, driving power, pumps, softening tanks, &c. Mr. H. H. Higgs, of Heme Hill, have already commenced operations in the construction of the water-tower, which will be 45 ft. in height. The site is near the Secondary School, and on the north side of the railway. Mr. H. H. Christie has been appointed clerk of works.

THE DRAINAGE OF TWELVEDMOUTH. At a meeting of the water committee of Berwick sanitary authority on Friday, Messrs. J. and A. Leslie and Reid, civil engineers, George Scott, Llandudno, were engaged to carry out the sewerage of the Twelvedmouth district of the borough of Berwick. The matter was before the last meeting of the authority, and was referred to the committee with powers. The drainage of Twelvedmouth is the natural sequel to the adoption of the joint water scheme, for which Messrs. Reid and Waring, London, are the engineers. No estimate of the cost of the drainage has been formed, but the probable cost of the joint water scheme is between £18,000 and £20,000.

With the concurrence of the Commonwealth Government, Sir George Reid, High Commissioner for Australia, has appointed Messrs. Marshall Mackenzie and Son architects in connection with the construction of the Commonwealth offices to be erected on the Aldwych Street site recently acquired from the London County Council. Mr. Alfred Barr will be associated with Messrs. Marshall Mackenzie and Son in the work. As we have already announced, the plans for the proposed new offices were prepared by Mr. Alfred Barr and approved by the London County Council. They were illustrated by us in our issues of December 6 and 27, 1907.

The Education Committee referred to the London County Council on Tuesday that the Council on March 6, 1905, appointed Professor Beresford Pite as director of architectural instruction and lecturer on architectural subjects at the L.C.C. School of Building, Brixton, at a salary of £300 a year in respect of three evenings' attendance a week. Professor Pite now wishes to be relieved of the obligation to attend on as much as he can, and has asked the committee of his new duties at the Architectural Association. He has, the Committee reported, rendered excellent service to the Council during the last six years, and, should he attend on not more than two evenings a week, the Council would still have the advantage of his services in directing the architectural work of the school. Professor Pite's services cannot be valued pro rata to his present salary, in respect of each evening in week, and they suggested that he should be allowed to attend on two evenings a week, and should be paid at the rate of £250 a year. The recommendations were agreed to.

It was further reported to the Council at the same meeting that the widening of Woolwich road which the Council had decided to undertake in accordance with the powers conferred by the London County Council (Tramways and Improvements) Act, 1900, have been completed. By means of the improvement the street has been widened for 4,100 ft. from a minimum width of 26 ft. to an average width of 50 ft., with a minimum of 44 ft. It was further reported that the construction on the overhead trolley system of electric traction of the authorised tramways (i.) in Brook-green road, Hammersmith-broadway (single line only), and Queen-street, and (ii.) from Putney Bridge, via Lower Richmond road, High-street, Putney, and Putney Bridge-road, to High-street, Wandsworth, has now been completed. The latter is reserved for public traffic on demand. It was notified that Mr. A. J. Bailey, a senior assistant in the architect's department, who will attain the age of sixty-two years on March 9, will be retired from the service as from March 21, 1912. Mr. Bailey, who has completed nearly forty-three years' service, is in receipt of a salary of £100 a year, and the Council has granted him a pension of £204 13s. 4d. a year. The proposal of Mr. Bailey to retire has been met by the Council, who have decided to oblige him to retire in L.C.C. contracts and to substitute a system of invitations to selected firms, evoked many protests, and induced the chairman of the committee to take the matter back for further consideration. Mr. F. L. Dove (chairman of the Establishment Committee), replying to Mr. J. D. Gilbert, stated that it was estimated that the contract for the first part of the superstructure of the new County Hall would be let in March, 1913, and the contract for the second part in the following July. It was estimated that the superstructure would take three years to complete from the time the contracts were let.

The latest municipal enterprise of Glasgow is the establishment of a fire insurance fund. The corporation are to undertake wholly the insurance of all properties belonging to the respective municipal departments and under their administration where the risk is of a normal character, and the proceeds of the fund to be distributed among their properties where the risk is considered to be of an abnormal

character to the extent of one third only. The principle of municipal fire insurance has been previously adopted, and at the last meeting of the council the scheme was approved by 36 votes to 23. The criticism of the minority was directed to the question of the financial stability of the enterprise. It was complained that the reserve fund available amounted to only £23,000. On the other hand, it was pointed out that in twenty-one years the council had paid £3,000 in premiums and had received back in claims £13,000. The premiums to be paid would be reduced under the new scheme by a third. The proportion of abnormal risks would, it was stated, amount to about £5,000.

A National Conference on Practical Details in the Administration of the Housing and Town-Planning Act will be held in Glasgow on Tuesday and Wednesday, March 19 and 20. The advisory committee have decided that the special interest of local authorities in the present nature of the Act for clear and precise information as to the actual procedure to be followed in housing and town-planning work. The need for action will therefore be taken for granted, and the whole of the time of the conference will be devoted to the consideration of those questions of practical administration which are perplexing the minds of councillors and officials engaged in the work of administration.

A lecture on "The City Beautiful" was delivered by Mr. Edward Rathbone at the Free Library, Llandudno, on Tuesday night. The lecturer enlarged on the importance of preserving the beauty of pleasure resorts. He drew attention to the harmony of the Conway suspension bridge and tubular bridges with Conway Castle, and the way Conway Castle had been dealt with, so as not to destroy the romance of the old castle by vulgar and obtrusively ornamental iron railings. He also commented on the happy design and colouring of the Llandudno Pier, and the comparative absence of distressing advertisements such as disfigure Rhyll Pier. The lecturer, however, condemned the use of tiles in the Llandudno district as out of harmony with the limestone of the Great Orme's Head. He recommended thick slates, and buildings and colour, so as to give a pleasant broken colour effect. Mostyn-street he considered far inferior to Lord-street, Southport. More should be done by the town authorities to supplement the general gaiety of the place by the planting of more trees where possible. He called attention to the Bill for the control of public advertisements in places dedicated to recreation, such as Llandudno. Generally, the kind of advertisements which the people should be kept duly subordinated to the good of the town as a whole. Mr. Rathbone illustrated his lecture by lantern views of the old cities beautiful: the city of Liverpool, whose virtues and shortcomings were mainly illustrated; and Paris, mainly as the city beautiful, showed the last successful effort to make a modern city beautiful.

The mansion-house of Donbristle, near Aberdeen, one of the seats of the Earls of Moray, which was destroyed by fire in 1848—fifty-three years ago—is to be restored. Workmen are now engaged in demolishing the blackened walls, which will take a matter of two months to level with the ground. The Earl of Moray, who is at present in residence, is taking a personal interest in the work, and last Friday fired the charge which has brought down the tall gable of the old house. The ruins in the striking ruins have been visited by more than thousands during the half-century since the great fire, and they have viewed with interest the blackened walls and the picturesque surroundings. The ornamental gateway, close to the Forth, through which the approach is made, is an object of interest, being of fine hammered ironwork, the present of Queen Anne of Denmark, centuries ago to the then Countess of Murray.

The January and February issues of our long-established contemporary, *The Journal of Theoretical Art*, are marked by a characteristic renewal of the vigour of purpose and excellence of judgment which throughout its

past thirty-one volumes have attained and secured for it its unrivalled position. The colour illustration scheme must be of infinite service and interest to all high-class decorators, and the general matter and illustrations well up to the high standard of the front-page motto—"Nothing is denied to well-directed diligence." From the same office we have to welcome a complete publication, entitled "The Drawing Room: Some Simple Suggestions for its Treatment," issued at 3s. 6d. This is a companion work to "The Dining Room," issued two years since. Six schemes are given; four of white, yellow, grey, and blue rooms, the other two showing respectively an Oriental and Old English room. Each scheme is illustrated by an original plan in colour, and there are plentiful accompanying illustrations of details in black and white. No decorator desirous of pleasing clients of really good taste will neglect to avail himself of the invaluable aid of this well-conceived and indispensable help.

The "Natural History of Clay," by Alfred B. Searle (London: Cambridge University Press; 1s.) is a useful summary of our present knowledge of a subject enveloped by many problems which still need solution, most of them rendered peculiarly difficult because of the inertness of the materials at ordinary temperatures, and the ease with which the clay molecule appears to break down into its constituent oxides at temperatures approaching red heat, or as soon as it begins to react with alkaline or basic materials. Moreover, there is also the highly complex nature of the property known as "plasticity," to which many clays owe their chief value, and which is of such an elusive character as almost to defy measurement with much accuracy. The rule-of-thumb clay-worker—or, rather, his client or customer—often only apprehends these difficulties when failure follows on the heels of ignorance of their nature, and all may read Mr. Searle's interesting volume with advantage.

A simple form of recording filament electrometer is described by M. P. Villard in "Le Radium." The U-shaped carbon filament is that of a 110-volt 5- or 10-candle lamp, according to the sensitiveness required. It is supported horizontally midway between two small vertical plates of metal, the distance apart of which can be varied. They are connected to the poles of a dry pile, and the filament is attracted to one or the other, according to the potential to which it is charged. The motion is recorded photographically on a revolving drum by means of the light from an electric lamp reflected into a microscope objective by a small cylindrical mirror attached to the end of the filament. The motion is nearly aperiodic, the zero absolutely stable, and variations of frequency not exceeding 5 per second are correctly recorded.

In connection with the extension of Gartesh school, Cadder, the plans of Messrs. Lennox and McMath, Bath-street, Glasgow, have been accepted. The cost is estimated at £4,635.

Mr. G. Packer, of York, has been appointed district surveyor for the centre of office at West Riding County Council, at a salary of £150, rising by yearly increments of £5 to £180 per annum.

The town council of Aberystwyth resolved on Tuesday to apply to the Local Government Board for sanction to borrow £11,793 for the erection of workers' houses on Corporation land in the borough.

The new razged-school buildings at Saranac have been formally opened. The school has been erected by Mr. T. D. Jones from designs prepared by Messrs. Thomas, Meager, and Jones, and the cost was about £3,400, including site.

The corporation of Stoke-on-Trent have referred their finance committee's claims for compensation in respect of loss of office as architect to the education committees of Burnham and Tunstall received from Mr. A. R. Wood.

At a meeting of Edinburgh Town Council on Tuesday, the plans of the new police-station to be erected in the Grassmarket were generally approved, the city superintendent of works appointed architect on the understanding that the work will be carried out as part of the general work of the department.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter should be sent to the EDITOR of THE BUILDING NEWS, Edinburg House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not uncommonly caused by contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Cheques and Post-office Orders to be made payable to THE BUILDING NEWS, COMPANY, LIMITED, and crossed London County and Westminster Bank.

NOTICE.

Bond copies of Vol. C are now ready, and should be ordered early (price 12s. each, by post 12s. 9d.), as only a few more are being printed. A few bond copies of Vols. XXXIX, XL, XLVI, XLIX, LIII, LXL, LXII, LXIV, LXV, LXVI, LXVII, LXIX, LXXI, LXXII, LXXIII, LXXIV, LXXV, LXXVI, LXXVII, LXXVIII, LXXIX, LXXX, LXXXI, LXXXII, LXXXIII, LXXXIV, LXXXV, LXXXVI, LXXXVII, LXXXVIII, LXXXIX, LXXXX, XCI, XCII, XCIII, XCIV, XCV, XCVI, XCVII, XCVIII, XCIX, and C. may still be obtained at the same price as the other bond volumes are out of print. Most of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers in large quantities should order at once, as many of them soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s. 6d. per dozen, are obtainable from any bookseller, or from the Publisher, Edinburg House, 1, Arundel-street, Strand, W.C.

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Advertisements for the current week must reach the office not later than 10 a.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* Reference to advertisements can be received at the Office, Edinburg House, 1, Arundel-street, Strand, W.C., free of charge. If to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

RECEIVED.—C. A., A. C., and G.—T. E. A. G.—C. and B. W.—W. and Co.—J. and Son—C. D. and Co.—D. and I.—S. U. D. C.—B. S. Co., Ltd.—J. N. and Co.—T. G. S. and Son—W. M., Ltd.—E. L. Co., Ltd.—S. B. and Son—J. and Son—L. S.—S. W.—W. and Co.—S. B. Ros., Ltd.—W. H. S. and Son, Ltd.—T. B. B. and Co.—T. L. and Son—K. J. S.—M. C.—J. and Co.—T. B. and Co.—J. and Co.—W. H. S. and Son, Ltd.—W. K. F. Co., Ltd.—G. B. and L., Ltd.—D. W.—K. F. Co., Ltd.—R. B. and L.—S. and Co.—L. D. Co.—N. and Co.—H. Bros. and E., Ltd.—D. and Co., Ltd.—S. E. Co., Ltd.—R. Co., Ltd.—H. B. Co., Ltd.

VALUES.—No.

R. P. J.—Thanks, no.

T. M. H.—You have no claim.

CAREFUL.—Not a firm we care to recommend.

CHAS. H. ROBERTS.—I and 2, "Intercommunication" is not meant for elementary students' questions. 3. No.

TRIVY.—Very ingenious, no doubt, but in its essential features nothing more than a sort of architectural shorthand.

DERIVATIVES.—We believe Messrs. Piketty's system has not only been introduced into this country, but on the Continent has been extensively used, notably in France, one of their recent jobs being the construction of a bridge over the Seine in Paris.

LESTERS.—See our "Directory" pages; we know nothing of the people you name, except that they are not there.

N. B.—There are several preparations on the market, but we should go to George M. Callender and Co., Ltd., 25, Victoria-street, S.W. Ask for particulars of "Proflex."

N. and D.—Our own experience is that scraping is about the quickest job. We had a fairly good remount once with a mixture of sand and sawdust, but the parts quirked and 32 parts soon lost—lost to a consistency of cream. Lay it out hot very carefully, and let it remain the night. Remember it is very elastic, and will damage the work. It is better awkward to use anything of the kind on large flat surfaces. Our job was on some mouldings.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Vampire," by "Soot," "Briton," "Five Towns," "Need-to-Well," "Benevolent," "Liver," "Veritas," "Marrow," "Rough Walls," "Cheer Up," "Way Not," "Nil Desperandum," "Diamond," "Country Yodel," "Thous."

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Meeting to Consider Proposal to Establish a "London Society." Galleries of Royal Society, 1, Whitehall, 8 p.m. Birmingham Architectural Association. "The Modern House," by W. Howard South-Smith, F.R.I.B.A., 6.45 p.m. Leicester and Leicestershire Institution of Architects. "Italian Architectural Decoration in the Fourteenth and Fifteenth Centuries," by Beckwith A. Spencer, M.A., 8 p.m.

Institution of Municipal and County Engineers. Metropolitan District Meeting. "The Relation of Modern Road Surfacings to Fish Life," by W. J. A. Butterfield. Grafton Hall, Westminster, 7.30 p.m.

SATURDAY (To-morrow).—Clerk of Works Association. Annual Dinner. King's Hall, Holborn Restaurant, 6 p.m.

MONDAY. Architectural Association and Junior Institution of Engineers. Combined Meeting. "Bridges," by Paul Waterhouse, M.A., F.R.I.B.A., 7.30 p.m. Institute of Municipal and County Engineers. "Hospitals and Sanatoria," by Albau H. Scott and P. C. Davies, 8 p.m.

TUESDAY.—Institution of Civil Engineers. Discussion. "The Effect of the Wind on the Water-Strand," and "Investigations Relating to the Yield of a Cementation area in Cape Colony," 8 p.m.

WEDNESDAY.—Glasgow Institute of Architects. "The House of the Future," by George V., to George V., by Maurice B. Adams, F.R.I.B.A., of London. Royal Society of Arts. "Gothic Engraving," by Cecil Thomas, 8 p.m. Manchester Society of Architects. "Scottish Architecture of the 14th to 17th Centuries," by A. N. Paterson, F.R.I.B.A.

Association of Engineers-in-Charge. "Steam Turbine Machinery," by A. A. A. Whyne, 8 p.m.

FRIDAY (Feb. 16).—Edinburgh Architectural Association. "The House of the Future," by George V., to George V., by Maurice B. Adams, F.R.I.B.A., of London. 7.30 p.m.

Glasgow Architectural Association. "The House of the Future," by George V., to George V., by Maurice B. Adams, F.R.I.B.A., of London. 7.30 p.m. Institution of Civil Engineers. Students' Meeting. "The House of the Future," by George V., to George V., by Maurice B. Adams, F.R.I.B.A., of London. 7.30 p.m.

SATURDAY (Feb. 17).—Architectural Association. Visit to the British Museum Extension (J. J. Burnett, F.R.I.B.A., Architect). 2 p.m.

The salary of Mr. Ernest Jenkins, surveyor to the Penybont Rural District Council, has been increased by £50 per annum.

In the Birmingham Bankruptcy Court the application on behalf of William Charles Channing, Grosvenor-road, Handsworth, builder and contractor, also carrying on business under the style of and in partnership with builders' merchants, has been returned.

Mr. G. H. Dutton, B.Sc., assistant curator of the Sunderland Museum, has been appointed by the Derby Museum and Library Committee to the post of curator of the museum and art gallery there. The salary of Mr. Dutton's new position commences at £200 per annum, with residence.

The corporation of the city of Sheffield has obtained powers under the Public Health Acts Amendment Act, 1907, to make by-laws "with respect to the height of chimneys of buildings, and with respect to the structure of chimney-shafts for the furnaces of steam-engines, breweries, distilleries, or manufactories." Section 33 of the Act exempts the buildings of railway companies and others from the operation of such by-laws.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Eppingham House,

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GETTING OFF THE BEATEN TRACK.

It is possible that, as long as human nature remains what it is, the few will lead the way, while the vast majority follow them blindly, like the proverbial flock of sheep—never, apparently, pausing to think for themselves. The well-trodden path is at least safe and easy, although it may not be exciting; it presents less trouble, less risk of criticism or of failure.

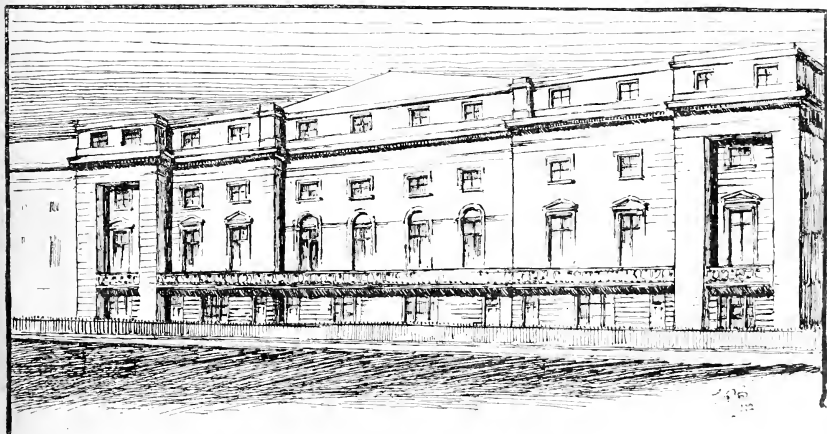
The architectural student is no more free from this trait of human character than other people, and the result can be

drawing of the Orangery, Kensington Gardens (for example), however perfect the draughtsmanship and accurate the dimensions, would stand any chance of success in an important competition in any school of standing.

There is, perhaps, less excuse for this blind following of precedent in London than elsewhere. In so vast a city there must necessarily be very many buildings presenting points well worthy of close and intimate study. They may not possess all the merits of better-known examples; but,

of practically unknown works each expressing some particular quality of architectural design, or occasionally merely a feature which it would be well to avoid. To select a few examples, more or less at random, will illustrate the point.

Euston Station possesses several features of excellent detail. Almost unnoticed in a dark vestibule is a range of C.I. gates, treated in a fine broad manner, splendidly characteristic of the material. The large centre ring is applied to the door in such a way that it connects up the vertical bars



BLOCK OF HOUSES, HAMPSTEAD ROAD, N.W.

seen in any exhibition of measured drawings and sketches, when certain stereotyped buildings in London and the provinces are almost certain to be in evidence, until reiteration deadens a large amount of the interest and beauty which they undoubtedly possess.

Of course, it must be granted at the outset that to each individual the subject is fresh; but does that justify the existence in every school, more or less, of three or four copies, by different men, of some well-known examples? Certain buildings become most flagrant offenders in this respect, and, as a result, no measured

in spite of this, it is questionable if infinitely more is not gained by finding and selecting a new example—and, incidentally, the freshness thereby given to the work, and the knowledge of the definite value of new records—than is lost by possible shortcomings in the building selected.

In addition to this, and possibly of more importance to the individuality of the artist, it tends to produce a stronger, more vigorous, and self-reliant personality. To turn to the sketch-book of such a man, instead of the stereotyped "Doorway from Carey-street," etc., it is found to be full

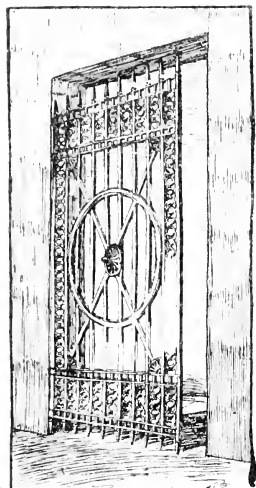
and at the same time insists upon its importance in the design. The interlacing rings around the edge are good in detail, and possess this same quality of characteristic cast-iron design. In the large hall, a cast-iron and bronze railing (the bronze since lacquered over) and the long console brackets under the gallery at once attract attention. The ceiling and clerestory, perhaps better known, although coarse in detail, are good in mass and outline.

Close at hand are the squares of Bloomsbury, with many quiet but effective groups of Classic houses. One of the less-known is shown in the sketch. (The last house on

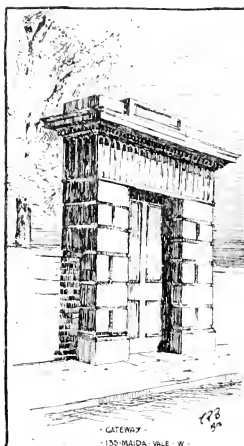
the right was once occupied by Crickshank.) This, although bare and possibly to some extent uninteresting, is nevertheless a good example of grouping and sub-

station, vigorous and bold, would form a good key for many a modern lamp.

The entrance-gate from Maida Vale, N.W., is one of a series, many different



C. I. GATEWAY -
- EUSTON STATION -



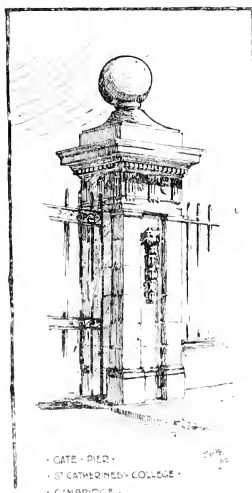
GATEWAY -
- 155 MAIDA VALE, W. -

in treatment, but designed on broad and simple lines, which line this street, forming, with the boundary-walls, a screen to some interesting 19th-century Classic houses behind.

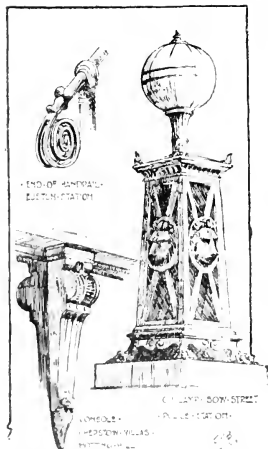
The gate-pier from St. Catherine's

division, and might well form the basis for a modern street-front treatment.

Again, observe the almost Greek purity of outline of the lovely little console from Chapew Villas, Notting Hill—a street of



GATE-PIER -
- ST. CATHERINE'S COLLEGE -
- CAMBRIDGE -



CHURCHY-BOW STREET
- LAMP-POST -
- EUSTON STATION -

Mid-Victorian street-fronted house, which, in spite of their somewhat depleted material, often possess a charming domestic feeling.

A cast-iron lamp from Bow-street Police

College, Cambridge, is, perhaps, not so familiar as it might be; but to select one example from such a town is possibly hardly justifiable, where well-known and unknown work is in such abundance.

These few examples may serve to show the possibilities of hunting in backwaters; but it should require very little to convince the architectural student of the many delightful bits of work lying within reach of the office or the home. Once having called his attention to the fact, his own observation should be sufficient to show that often at the office door is a piece of good detail, unnoticed by anyone—least of all by the occupier or the user of the building.

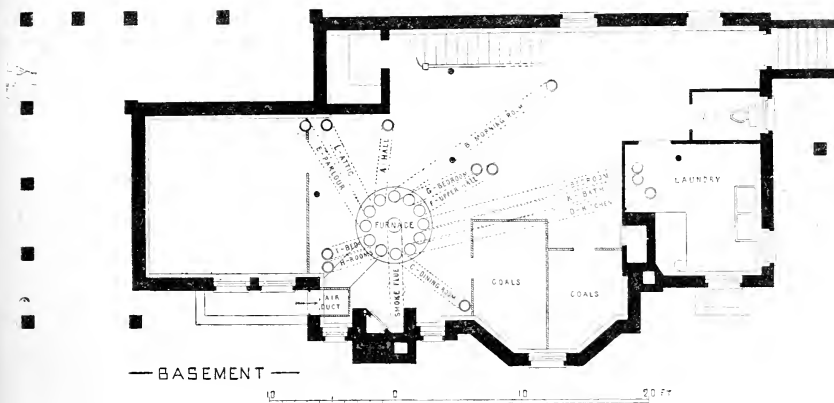
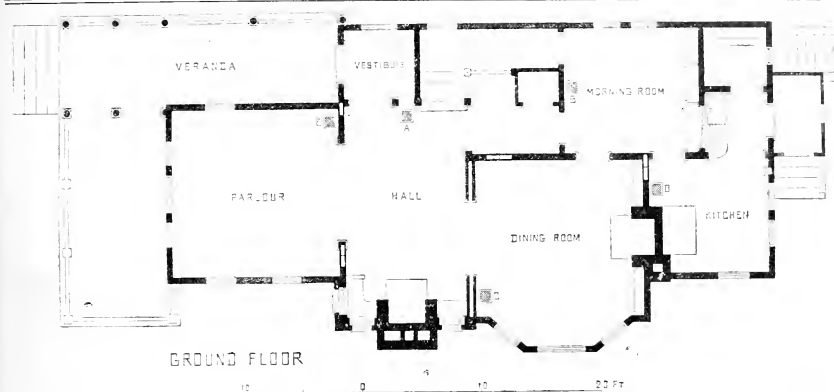
WARMING DWELLING-HOUSES BY THE FRESH HOT-AIR SYSTEM.

By GEORGE ASHDOWN ADESLY, LL.D.

I have never during my practice been satisfied with the ordinary method of local heating by open grates only, dear as they are to the home-loving Englishman; and so far back as the early "seventies," when I erected the large house called "The Tower," in Sefton Park, Liverpool, I installed a supplementary heating plant therein, using the Gibbs small-pipe, rapid-circulating hot-water system; but at the same time I furnished an open grate in every room in the house that called for one. Now, after my long experience in the United States, I am firmly convinced that the system adopted there, which I strongly favour, and describe and illustrate in the present article, will, when properly understood, win recognition in this country, on account of its manifold advantages.

Judging from what certain writers have said in the new papers, there is an impression that the adoption of a general heating system must necessarily do away with the open fires, which have become part of our national life and domestic habits and associations. This is a groundless fear, for there is no necessity to abandon the familiar open fire, and the feelings of cheerfulness and sociability it engenders, simply because all the other parts of the house are pervaded by a genial warmth. It is quite certain that in a long room, provided with ample window space, a single grate is altogether insufficient to impart the necessary heat in frosty weather, and, indeed, such local heat as it may give is quickly drawn up the chimney every time an open door allows an icy blast to enter from the hall or passage.

In an American house one of three systems of general heating is adopted—namely, steam, hot-water, or hot-air. The first and second may be briefly outlined and dismissed. Steam-heating requires the installation of a boiler of adequate size, having a sufficient furnace, water-supply, steam-gauge, safety-valve, and automatic draught-regulator, etc., all of which, including regular stoking, have to be attended to by an experienced person. A pressure of 5 lb. to the square inch, at least, must be kept up in moderate weather, increased up to 10 lb. in zero weather. A standing and fully-exposed radiator of sufficient size has to be placed in every room, hall, etc., that requires to be warmed, and this necessitates the passage of the connecting steam-pipes through rooms, and from floor to floor, usually very unsightly. The radiators require to be properly attended to, to prevent condensation within them, and consequent noise when fresh steam is admitted, which requires the condensed water to be run off—all troublesome matters. In large houses steam-heating is practically a necessity, and an expert is required to tend the boiler, and regulate the steam pressure and circulation throughout the house. Steam-heating only acts upon the air in the rooms, and is, accordingly, not attended by active ventilation, and it is peculiarly dry and parching in its effects, necessitating the placing of water vessels, for evaporation, in the neighbourhood of the radiators. I have resided for several years in a steam-heated house, and can speak from personal experience and observation. Hot-water heating, which, as a rule, is safer and less troublesome than steam-heating, requires an installation almost as complete as that just described. A boiler and furnace of adequate



heating power to secure perfect circulation throughout the system are necessary. The boiler has to be properly connected with a pressure-tank, required to keep the entire system fully charged with water. Circulating pipes, to and from all the radiators, have to be properly fitted, so as to secure perfect circulation in whatever rooms the radiators may be shut off. Radiators, similar to those required for the steam installation, have to occupy exposed positions in all the rooms, etc. If the installation is not perfect, noise and other objectionable results will occur continually, and frequently at most undesirable times. Care has to be taken to prevent the water freezing at any time in the pipes, and when the apparatus is done with for a season all the water must be drawn off, and the radiators and pipes left empty until the apparatus is again required to act. While it is not possible to get the high temperature with hot water that can be easily reached with steam, yet all the heat that is desirable can readily be obtained with proper attention to the furnace. Hot-water heating, like that of steam, acts only on the air in the rooms, furnishing no active ventilation, and is, accordingly, dry, though not so parching as that which results from heating by steam at the highest desirable pressure. My experience of hot-water heating extended over

a period of five years in a house of moderate size.

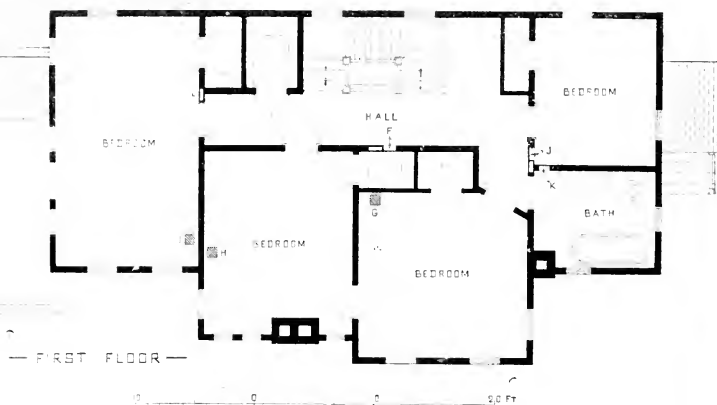
The installations of both steam and hot-water plants are necessarily expensive, calling, as they do, for the liberal use of special and high-class materials, and requiring expert labour in all branches of fitting, and even when skilfully finished in every respect, they are both liable to go out of order. For warming large houses and public buildings, the adoption of steam-heating is practically imperative; neither the hot-water system nor the more desirable one I am now about to describe can be successfully operated in them.

For dwellings of the ordinary dimensions, such as are being erected at the present time, in great numbers, in the suburbs of our large cities and towns, and in country districts, there is no general heating system so efficient, economical, and convenient as the American Fresh Warm-Air System. On the score of health it surpasses all other modes of heating, local or general, for it is the only one which combines the continual supply of fresh, moist air with adequate and agreeable warmth. From observation extending over eighteen years, and experience gained from houses I have erected for clients, and those resided in myself, I have formed the decided opinion that it is the only desirable system

for adoption in English villas, combining as it does health, efficiency, absolute safety, and economy in fuel and labour.

Reference to the plans of one of my American houses, which accompany this article, will make all the following details of the fresh hot-air system clear to the reader. The furnace, or heating apparatus, is invariably placed in the basement of the house, and in as central a position as possible, and as close to the ascending flue, with which it is to be connected, as convenient. Such a position is indicated on the Basement Plan here given. A central position is desirable, so that the majority of the hot-air ducts—

The plans will give those not familiar with American villas an idea of their general interior arrangement, although on the ground plan there are some features which are due to the special wishes of the client, notably the position and fittings of the so-called morning-room. Otherwise, the general openness which pervades the rest of the apartment floor is characteristic of American taste in house-planning. Here the parlour is almost entirely open to the central hall, while the dining-room is also exposed to the hall when its large sliding doors are opened. Although fire-places are introduced in the hall and dining-room, no dependence is placed on them for heating for the entire house is provided with a complete hot-air system. In such a house, during dry weather, a fire in every room would not warm it sufficiently, according to the American idea of comfort. Open fires are looked upon as less more ornamental than useful.

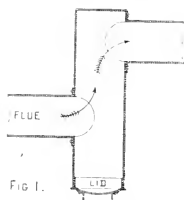


diverging from the heater may be kept as short as practicable. The position of the apparatus is also influenced by the fact that it is always desirable to have the supply of fresh cold air taken from the south or southwest side of the house; at the same time it may be remarked that while it is desirable to have the fresh-air duct reasonably short, its length, providing it is of ample size in cross section, is not a matter of great importance. The outer orifice of the duct, which should not be less than two feet square, must be above the external level of the ground sufficiently to prevent water from rain or snow flowing into it. It should be covered with open-meshed wire gauze, so as to prevent rubbish being blown or sucked into it; but not so close as to materially check the free ingress of the air, or to clog up with dust or fluff. The duct between the outer orifice and the apparatus may be constructed of stout wood or galvanised iron. It must descend to the floor, or under the floor, of the basement, and be continued thence to the warm-air chamber surrounding the furnace. A sliding gate must be provided in the descending duct, to enable the desirable amount of fresh air to be admitted at any time, and to check onrads of strong wind, which would prevent the proper action of the apparatus, and force cold, instead of warm, air into the rooms.

The apparatus, indicated by the large circle on the Basement Plan, consists of a central, domed furnace surrounded by a drum of galvanised iron, about 48 in. diameter and 5 ft. high, secured to the cement floor, and slightly domed over at top. The furnace is cylindrical, about 24 in. diameter, and is so constructed of cast-iron as to be absolutely self-contained and flame proof. All its adjuncts, namely, the ash-box, stoking hole and door, flue pipe, etc., being carried out from its cylindrical body to fit the surrounding drum and so effectually prevent any smoke or fumes from entering the warm-air chamber of the drum. The lower portion of the furnace, or the fire-pot, has a stout fire-clay barge set in the cast-iron walls which rise from the floor level, and extend up to the heating dome above the fire-pot. This domed portion is carried up to nearly the height of the surrounding drum, and its smoke pipe is extended to sufficient height above the dome to serve as the drum to receive the end of the external smoke pipe, which comes in at the chimney flue. The smoke pipe is made of the best galvanised iron, composed of several pieces which clip into each other, to enable it to be removed in summer and properly cleaned. It should have a short vert. al pipe inserted in its length, the smoke pipe being connected with the same

at different levels. The bottom of the vertical piece to have a movable lid fitted to it, so as to admit of the soot or dust therein deposited being easily removed. A section of this contrivance is given in Fig. 1.

The rocking-bars of the furnace are connected by cog gear with a horizontal bar, which is moved by an external lever, the simple to-and-fro movement of which effectually clears the fire-pot of all ashes. The doors of the ash-box and furnace are fitted with perforated slides, which regulate the supply of air below and above the fire. The dome of the furnace is made in different forms, so as to present as large a heating surface as possible; it is sometimes deeply corrugated, while in better furnaces it is cast with several tubes, which curve inwards



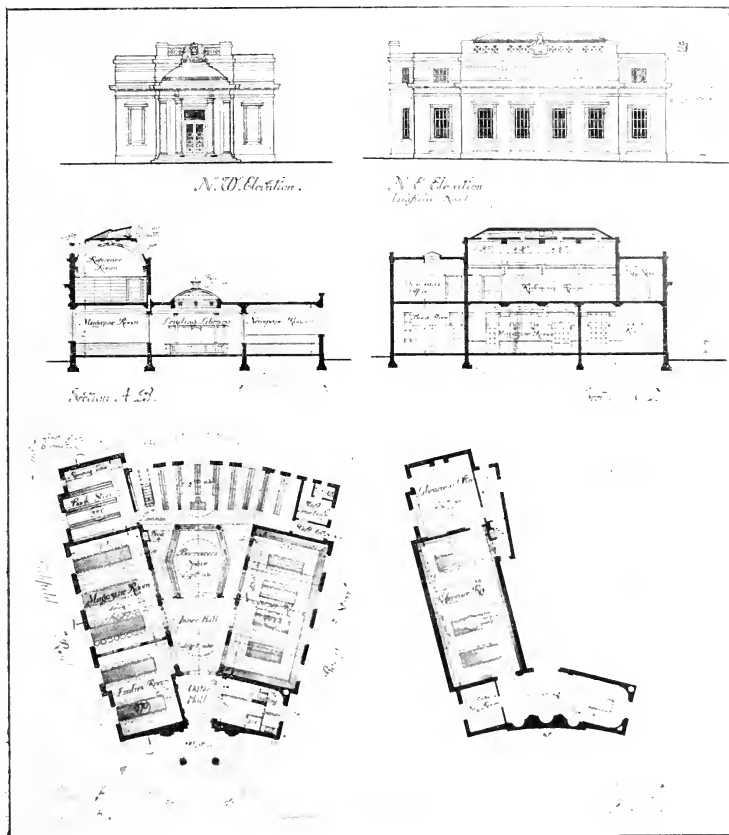
toward the fire, and present their open ends toward the warm-air chamber of the drum. These tubes add greatly to the efficiency of the apparatus.

To supply the heated air with the desirable degree of moisture at all times, a cast iron cistern, holding about two gallons of water, is inserted in side of the drum; its chief portion—presenting as large a surface as practicable to the heated air—being inside the drum. A sufficient portion extends outwards to enable the cistern to be readily filled; this portion is closely covered by a cast-iron lid. The cistern commonly requires to be filled once every two days. In its operation it renders the warm air pleasant and healthy.

Round the domed top of the drum are projected nozzles for the reception of the warm-air ducts which extend therefrom to the several registers in the floors and the ascending ducts in the walls or partitions. The manner in which the ducts diverge from the drum is shown on the Basement Plan, each one being inscribed with its destination, and lettered to accord with the lettering of the several floor and wall registers marked on

the Ground and First Floor Plans. The warm-air ducts in the basement are commonly about 9 in. in diameter, made of strong tin-plate, and furnished with a disc-valve inside, by means of which any duct can be shut off from any portion of the house when not required, or when it is desired to concentrate the hot air in any special rooms. These ducts are carried in position by wire loops fixed to the flooring above. The ducts open directly into shallow tin-plate boxes under the floor registers, marked A, B, C, D, and E in the Ground Plan, heating respectively the hall, morning-room, dining-room, kitchen, and parlour. The floor register is about 14 in. square, and consists of an ornamental grating of cast iron or bronze having a series of small folding shutters underneath, which can be opened and closed by a slight touch of the foot, according to the amount of warm air desired at any time. The warm air is conveyed to the several rooms on the first floor and attic through vertical ducts built in the partitions, as indicated by the white, oblong openings therein on the Ground and First Floor Plans. These vertical ducts open into the floor registers on the first floor, marked G, H, and I, and directly into the wall registers indicated at F, J, and K. The vertical ducts used in American houses, built of wood or brick, are made of strong tin plate, and usually measure, in cross-section, about 12 in. by 3 in. to 4 in. As only warm air passes (never above a temperature of 70 deg.), they are carried up wooden partitions with perfect safety. Of course, if necessary, or preferred, in houses constructed of brick the ducts could be either of pottery or cast iron; but galvanised iron would be suitable in every respect. The wall register is similar in all essentials to the floor one already described, but having a simple device for opening and closing it by hand. It is usually placed at about 12 in. above the floor.

The installation throughout, as shown on my plans, is extremely simple and inexpensive, and proved sufficient, with moderate firing in the furnace only, to heat the entire house to 70 deg., in zero weather, throughout the day, and about 50 deg. during the night and early morning hours, before full draught was started for the day. Of course, it is understood that the temperature of every room can be controlled, as required, by admitting more or less air from the registers. It is unnecessary to enlarge on the economy of labour, seeing that there is only one fire to attend to, and that close to the coal supply. Economy in fuel is secured; and fresh, pure air, properly warmed, is steadily poured into every room and space in the house, instituting a forced ventilation entirely free from draughts or currents of cold air.



Staffordshire Sentinel, Ltd., Photo.

STAFFORD NEW PUBLIC LIBRARY: THE SELECTED DESIGN.

Messrs. BRIGGS, WOLSTENHOLME, and THORNELY, Architects.

The cost of the installation would not be more than that entailed by forming fireplaces and flues and placing grates and mantelpieces in almost every room of a house of moderate size. No one can adequately estimate the comfort secured by such a system of heating save one who has lived through a winter in an American house so warmed.

STAFFORD PUBLIC LIBRARY COMPETITION.

The competition for a new library at Stafford produced a remarkable response, no fewer than 210 designs being submitted for a building, the cost of which is not to exceed £4,000. Taking the cost of each design at £10—a moderate estimate, when principal's time, draughtsmen's wages, etc., are included—the net result is that the profession has spent £2,100 in order that one member of it may earn £200. It is obvious that there is something financially unsound about a system like this, but it is difficult to see

where the remedy lies. A limited competition, no doubt, meets the case admirably for those who happen, by means of their reputation or influence, to be included, but is of little use to the younger and unknown men. In this particular case, Mr. H. T. Hare's reputation as an assessor, together with the very fair and straightforward conditions, no doubt helped to swell the number of competitors. The building will comprise a news room, magazine room, reference room, ladies' room, and lending library, with the usual staff accommodation. The site is at the corner of Lichfield-road and Bailey-street, the angle of the building facing the main street of the town. A number of the competitors made the Lichfield-road front the main one, but they had evidently not visited the site, and their designs had no chance whatever. A peculiar feature of the requirements was that a counter 40ft. in length was to be provided in the lending library, which seems unnecessarily long when the number of volumes to be accommodated is only 12,000.

THE SELECTED DESIGN.

When so many designs are submitted for such a small building, quite a number are naturally very similar, and have little to choose between them; but the selected one, by Messrs. Briggs, Wolstenholme, and Thornely, of Liverpool, certainly appears to be the best. The plan is simple and straightforward, and the elevations, in the Neo-Greek style, are broadly treated and to a good scale. The 40ft. of counter has been cleverly worked in, though it would be an improvement if the sides were straightened, the loss of length being compensated for by providing a flap instead of the doors, as shown. The building is admirably arranged for supervision by a small staff, although the entrance and staircase are not, perhaps, very well controlled from the lending counter. On the whole, however, we think the competitors will be satisfied with the selection of this design.

MESSRS. SUTTON AND GREGORY, who were placed second, also submitted an

gether from academic teaching, and some of the work produced by the more able and more moderate spirits in the great German towns is full of promise. It is suited to its purpose, good in its proportion, broad and dignified in its masses and outline, picturesque, balanced in light and shade, refined and expressive in its character, and reserved in the distribution of its ornament—in short, manifests all the qualities of good architecture. In the architectural schools connected with the universities of Germany the best practising architects of the day are the professors of architecture, and among them are apostles of this secession. Everywhere in the main towns may be seen this impatience with academic design, a thoughtful optimism and courage in the adoption of new forms suited to new materials, and while we must lament and condemn its abuses, we must freely admit its virtues. This movement has also largely leavened architecture in Austria, Scandinavia, and Finland. Why is it that the works of the moderate and scholarly men of this school at once arrest and hold our interest? In some instances they do not appeal to us as much as the Classical, but they are thoughtful and inventive. It is not because they express individuality as well as knowledge, and a preference for national tradition? And there is no reason why this modernist school should not, at a later stage, evolve great works of combined art and science. In the case of the conventional school the mind is unable to foresee any further progress than a skilful shuffling of historic features, which may have the merit that they do not shock or offend cultivated taste, but which arouse no enthusiasm, express no modern sentiment, and have long lost their own.

We venture to submit to this meeting that the secessionists, as represented by their more scholarly and moderate men, are working on the lines which produced all the architectural masterpieces in the Western world, and that their masterpieces were not isolated efforts of an individual, but the result of a band of masters working on the same traditional lines, both instructive and ornament, not copying architectural features, caring only for that which interests them most in the creations of their contemporaries, and endeavouring to improve upon it. It was all they knew, and quite sufficient for them. It only remains for the school to persist, and we are sure to get a living and beautiful style of architecture. Ruskin's teaching may not always be reliable, as applied to architecture; but happy the artist who has once revelled in the thoughtful and poetic spirit of that great teacher, and happier still the architect who has been trained in the traditions of Medieval architecture. Once a master of this school to persist, and we shall again be as closely tethered to the area of conventionality. He may gravitate towards greater severity of form, but his work will manifest individuality, and he will never be guilty of sacrificing the picturesque which so pre-eminently suits our Northern character and environment, and without which our streets, and especially our skylines, become so painfully monotonous and unimpressive. What would our villages be without their Gothic parish churches and their Elizabethan manor-house, the City of London without its towers and spires, or Westminster without its Parliament Houses? And why is it that an architect well trained in the Gothic school can effectively practise in Neo-Classicism, while the man whose education has been exclusively Neo-Classical cannot design decently in Gothic? Why do we want that? It is this feeling for picturesque which, more than anything else, embodied the Anglo-Saxon genius in Wrenian architecture—the Medieval spirit engrafted on the Palladium stock. Shall we abandon the tradition which gave us our cathedrals and parochial churches, the towns of Oxford and Cambridge, Rochester, Hildesheim, and Chester, or a Haddon Hall, Hatfield House, and such like architecture? And how can we reconcile this eclectic practice with the essential need of continuity of one tradition, held and exercised by a large school?

It was the dread of Classic uniformity which led me to suggest this subject, when requested by your President to read you a

paper. Do not suppose me to hold an exclusive brief for Medieval art! No man knows better than I how to appreciate the fine Classic designs of all countries and all periods, including present-day Georgian; one recognises its impressiveness, as applied to important civic and monumental purposes. It is possible, however, and most desirable, that it should be allowed to monopolise our studies and control our practice, to the exclusion of styles which, after all, handled with skill, are more flexible and versatile in solving the complicated problems of modern civilisation and our religious ideals, and which, moreover, are distinctly English in origin. Did every attribute of greatness in Greek work—dignity, symmetry, rhythm and proportion, light and shadow—ever rise higher than in a Gothic cathedral? Is there no ordered and organic thought, no reserve or restraint, in St. Sophia or Chartres Cathedral? Surely we have in these buildings fine planning, fine proportion, fine scale, mass and simplicity in phrasing, and selection in ornament; qualities often quoted as exclusively characteristic of, and supporting the grandeur of, the Classic. The Classic "purity" or refinement of Greek ornament, and it is, therefore, an essential subject for study; but we must recollect that a Greek building, as regards its plan and construction, was the most elementary of all great European styles, and, therefore, is least adaptable to modern requirements. In Byzantine times, however, under the inspiration of the most constructive method of the Greek genius for beautiful form reversed the curves of the ancient capitals, threw to the winds the Periclean ornament, and devised something equally beautiful. The quality of exact symmetrical planning, so specially characteristic of Classic design as to dominate their smallest buildings, may be suitable in monumental architecture, but we know the absurdities to which it inevitably led Vanbrugh and his school in devising the great houses and palaces of the nobility, and all of us who have set ourselves the problem of designing a good country house, strictly on these principles, know also that it means sacrifice of comfort, convenience internally, and often of beauty.

We see this standardising tendency in those who wish to model our schools of architecture on the lines of the French schools. In these French schools no encouragement is given to Gothic architecture, and we have already commented on the evil effect of this scholastic intolerance on the vast amount of work which is the main expression of the domestic, educational, and religious character of the nation, and which constitutes the life-work of the vast majority of architects. Everywhere throughout France one sees in modern domestic work its baneful effect in a pretentiousness, born of the academic and monumental system of training. The Neo-Classical Style is not plastic enough to be suitably applied to humbler and rural architecture, excepting in the freest manner, such as is exemplified in our brick houses of the Queen Anne period. In our more important works I am convinced that in the future our architects will be more likely to draw more attention to scientific building construction, for in that, as in the history of the past, lies the basis of fresh development of architectural form, which shall be free from all affectation and insincerity. Steel and ferro-concrete are to play a great part in the future of our art. These new methods must be studied closely and adopted frankly where the facilities offered purposes, economic or otherwise, demand it. We must not, however, see the streets of our great towns lined with the "skyscrapers" of New York fame; but we cannot deny that here, at least, is a perfectly new style of architecture, full of intense interest, and, in the best hands, treated not only with sincerity, as expressive of their purpose, but often with considerable beauty, and largely free from all traditional ornament. There are, therefore, some of the special conditions applying to the limited land of New York; they afford a lesson rich in teaching to all of us, and we commend them to the consideration of our municipal authorities, as probably modifying their by-laws in the future, as the land in the centres

of our great commercial cities becomes more and more valuable. These steel and ferro-concrete buildings are to be produced, an exact scene of construction, and the carcass can only be designed to enclose people who have a full life work in meeting the mechanical problems. It is as absurd as it is possible, the object to make the mechanical science required to construct a building as for the engineer to become a master of a beautiful form as, with the command of the artist, to make it a thing of beauty. I claim even for a "skyscraper" the possibility of the possession of all the characteristics constituting good architecture. It is one of the most interesting architectural problems of the age, and is bound to intensify architectural study and practice throughout the world. The language of engineering is the language of reason; that of architecture is the language of beauty. Reason and beauty surely form a happy co-partnership—a marriage which is the parent of architecture, and one which may, in the near future, be expected to affect the constitution of our larger office staffs, as it has done in America. Within the last ten years we have partly improved and systematised our methods of education, and, happily, on the whole, we seem to be proceeding upon lines characteristic of our British education of foreign ideals.

That the Education Board of the R.E.B.A. is doing excellent work is evidenced by the recent notices of changes in the syllabus of studies recommended for the schools throughout the Empire, in preparation for the Institute's examinations. Examinations wisely controlled are highly useful in systematising study, and we have not only accepted the proposition that the training and examination of architects should be in the hands of practising architects, but all our universities (with the one exception of Cambridge) as well as our other schools of architecture, have endorsed this proposition by adapting their syllabuses to these progressive examinations. This Board is composed of architects who have not only attained eminence in practice, but have had experience as educationists, and their scheme for co-ordinating the training should be, and I think, is, based on the following principles: (a) Above all things to teach the student to observe, think, and invent, rather than to cram and copy. (b) That a sound general education should precede entrance to professional training. (c) That the course of instruction should be progressive, commencing with elementary design and construction, and leading up to an honours, or post-graduate, qualification. (d) That the intimate association of construction and design, as exemplified in the history of architecture, should be indicated by means of the school atelier and lecture-room in close co-operation, should be insisted upon throughout,—design and draughtsmanship being emphasised as essential elements of architecture. (e) While the school course must necessarily be largely general and theoretical, the office course should supply the more practical part of the training, but every encouragement should be offered to advanced students to specialise. Such educational principles ought to command the confidence of all the schools, but they clearly controvert the theory of training exclusively in Classic, or of encouraging the students to commence their course with advanced monumental design.

It only remains for me to plead that these schools of architecture we should insist the emphasis should be placed on the study of Gothic and English Renaissance, as well as to Classic tradition. In ecclesiastical work the former tradition has, with the exception of a comparatively brief period, been continuous in this country, and has of late been revived with extraordinary success. Church building is as active to-day as it ever was, and very beautiful and original work is being done in the style. It is not a passing fad. We feel that it would be nothing short of a disaster to art were our schools of architecture to cease to encourage special training in this style. The only argument which can be advanced in opposition is that in view of the complex requirements of the student has no time for both. Our reason

would be just as much an approved system of education, and every training is wide and provides the means achieved, the general, the special, and that following this common-sense and universal principle, the early courses of our architectural schools must make the student acquainted with the principal English styles in a general way, leaving him to his own inclination of opportunities to specialise on his own. The education which is offered does not lead to specialisation, this practice will do so, accordingly as he is commissioned for domestic, ecclesiastical, or civil work. Under this educational system a large number of men will be found to be carrying on the traditions of each of the following styles: say, Mediaeval for churches; Tudor, Elizabethan, or Queen Anne for domestic Georgian for civil. By instilling and training them to be specialists, just as medical men, lawyers, and other professional men group themselves and specialise in various departments of knowledge and experience. Specialisation is the only logical and practicable solution of the multifarious demands of a complex civilisation.

There is no fear of failure so long as our architectural societies encourage and our teachers proceed on the right lines. They must invest, and always, in a progressive training which enables them to design a simple cottage or village hall with enthusiasm and delight. We are too listless, too diffident, too pessimistic. Such a system of professional training has characterised our English schools so far, and is perfectly consistent with a higher course, either at home or in Paris, Vienna, or Rome, and it is the only one that can afford the time and means for designing on a monumental scale. A large majority of our students will not be able to take this special course, and seeing that the same general principles of design apply to all classes of practice, the men who have devoted their whole course to the mastery of less ambitious studies will then their special work all the better, and the more advanced work of the few, generally, carry off the plums of practice, whether by special appointment or in competition. We would offer one other note of warning—namely, that non-university schools of architecture should, while endeavouring to raise the standard of their students' general education before entering upon professional training, be careful not to cut out to exclude men whose special conditions may have allowed them to gain advantage, and yet may be brilliantly endowed for our calling.

We touched, in an early part of this paper, on our Imperial responsibilities, and it is a question worth the consideration of our teachers whether those who, English, foreign, or natives of our dependencies, have decided to seek their fortunes abroad, say in India and Egypt, should not be able to take a special course in Oriental expression, and thus be fitted to combine the constructive principles of the West with the indigenous forms and traditions of the East. It would be as impolitic, as inconsistent with our past and present policy, in the various spheres of our influence in India, Egypt, China, and elsewhere, to force an exotic and Northern style on these countries. Our policy should rather be to study and adopt all that is suitable in their indigenous architecture, yet giving it the impress of our freedom of thought and the impetus of our vastly superior structural methods. True, it will not be Indian or Chinese architecture, but like that of Sicily it will be the permanent and eloquent record of our influence or domination. In the light of these responsibilities we compare to all English architects the work of the German Saracenic architect of Palermo. In a recent issue of the *Builder* the following note occurred: "In a country as vast as the East Indies it is inevitable that the native traditions of workmanship and decoration must be relied on in the execution of the great majority of the buildings undertaken, and if these conflict with the conception of the architect, the result cannot but be chaotic and unsatisfactory. We ought, therefore, to recognise native workmanship as an essential factor, and as there is a strong and definite artistic

tradition, with numerous skilled expatriates still in existence in the East, the imported architect will achieve far finer results by basing his conceptions on this than by trying to impose alien and exotic forms on the native craftsman." Native schools of architecture are certain before long to be formed in India, China, and the Colonies, for which, at any rate for a time, English architects will probably be appointed the processors. To sum up, Modernism, the spirit of freedom, is the driving force of all growth and progress. Scholasticism or tradition is the element of law and order which is essential to curb ignorant and unbridled individuality that anarchy and chaos which is responsible for all the architectural monstrosities which have ruined our towns and villages, and which our curious popular English aversion to sports tends to encourage. "Excessive individualism means energy without order; excessive socialism, order without energy." It is the task of our professors to teach the true relationship of these complementary forces. Let us neither encourage the monotony of cultured mediocrity nor endure vulgar originality.

THE IMPROVEMENT AND DEVELOPMENT OF LONDON.

The inaugural meeting of the London Society was held on Friday evening at the Galleries of the Royal Society of British Artists, Suffolk street, Pall mall, and was attended by Sir Aston Webb, C.B., M.V.O., R.A., a number of letters of sympathy with the objects of the Society were read by the hon. secretary, Mr. H. J. Lanning, the writers including the Earl of Plymouth, Lord Claud Hamilton, M.P.; Lord Alexander Thynne, M.P., chairman of the Improvements Committee of the L.C.C.; the Bishop of Oxford, Sir E. J. Poynter, R.A.; Sir W. B. Richmond, R.A.; Sir Alfred East, R.A.; Sir W. G. Barlow, R.A.; Sir W. H. Lever, and Sir Herbert Tree.

The chairman said the promoters of the Society wanted to create a public opinion which would support public authorities in carrying out different schemes which might appear to be beneficial for London as a whole. The artistic side of the management of London had received comparatively little attention, and it had been thought that if painters, sculptors, architects, and designers, as members of Parliament, all men interested in art, should discuss these matters, and so inform the public from time to time, by degrees works of which London stood in urgent need might be carried out. The management of London was cut up into so many parts that it was difficult for anyone to think of London as a whole, and see what it required. His work had brought him in contact with many borough councils and Government departments, and he was perfectly convinced that the desire of all these bodies was to do the best they could for London; and if they were backed up more by public opinion they would do a great deal more than they could at present. They would want the counsel of the very best men in London, and the assistance of such bodies as the Royal Academy, the Royal Society, the Royal Society of British Architects, the Institution of Civil Engineers, and the Arts and Crafts Society. Whilst the artistic as well as the utilitarian received consideration from those responsible for the government of London, it was a fact that would hardly be denied that the utilitarian had prevailed. The aim of that gathering was a big undertaking, but that was no reason why they should not make the attempt. London had a beauty of atmosphere and colour all its own, and they should endeavour to get the public to realise the beautiful things there were to see in the Metropolis as well as the terrible things there were to be found, for in some places it seemed absolutely impossible to ask humanity to lead cleanly, godly, and healthy lives, and such places should be swept away. Town planning schemes were springing up all round London, and if they were carried out without reference to one great central scheme confusion would arise.

Professor Beresford Pile, F.R.I.B.A.,

moved the following resolution: "That this meeting heartily approves of the formation of the proposed Society, and recognises the need for united effort on the part of those interested in the welfare of the Metropolis, in order to advance the practical improvement and artistic development of London." He said that London had suffered terribly from the uninstructed enthusiasm of its lovers, and from want of foresight in public works. There was needed a quickening of public opinion as to the amenities of life in London, and the organisation of that expression of opinion. Another of the needs of London was pertinacity, so that when a great ideal was set forth it should be carried out. When the question arose of opening up the view of St. Paul's or of Southwark Cathedral London suffered from the want of well-informed opinion of what London might be, and what it should be.

Mr. Harold Cox, in seconding, protested against a suggestion in a letter by Lord Alexander Thynne that the public exchequer should be made responsible for the improvement of London, which was rich enough to take care of itself, and did not need to be subsidised by poorer people in the rest of the kingdom.

Sir John Bonn, in supporting, said he hoped financial considerations would not deter those who were pushing that movement. As a consequence of the fear of the ratepayer London was left to a lugger-mugger Government.

Sir Thomas Brock, R.A., also supported, and said that there was no lack of intelligence when great undertakings were initiated in London, but usually the artistic side was not considered, because it was suddenly sprung upon us. A society such as that suggested would be able to meet a difficulty with valuable advice to the authorities at the proper moment.

The resolution, to which Mr. R. Davidson also spoke, was carried.

Captain Swinton moved a resolution authorising the existing committee to draft a constitution, and to call a meeting to decide on further action. Mr. W. D. Carr-Saunders, F.R.S., F.S.A., seconded, and the resolution was carried.

ARCHITECTS FROM GEORGE IV. TO GEORGE V.*

By MAURICE B. ADAMS, F.R.I.B.A.

Making an end of his preamble, Mr. Adams continued: The tale at the outset is less easy to tell owing to the "Period of Parenthesis" due to the decadence of the Classic school having been concurrent with the incipient efforts of the "Gothic revival," the one expiring in the cold wane of yesterday's moon, while the other's advent anticipated the next day's possible sun. Taste owned no standard, the results were unequal and divergent, much of the most exhilarating, for the time, was marked as a break and a transition. Architects tried their hands at both styles, and set to work wrongly by adhering to Pagan plans while covering their exteriors with lifeless details shorn from Mediaeval precedents. The latest new cult, having got tired of "Late Renaissance" gush over the "monumental manner" of Farmer George's days, fettered as they were by the shackles of social mediocrity. The torrent of literary activity which burst forth in the reign of Queen Anne had little in common with the native talent for art, which then remained comparatively dormant and distinctly uninspiring. Our artistic shortcomings may even still suffer from our insular independence; but there is a gain associated with Anglo-Saxon prejudice and individuality. The importations of early French and Italian Gothic were only of short duration, and some are saying that the French Renaissance is a break and a transition, now, but the movement is exotic, and the femininity of Latin Parisian taste is little likely to supplant British masculinity. The marked tendency towards French art which arose about the middle of the 18th century accomplished little inter-

* Abstract of a paper read before the Glasgow Institute of Architects, Feb. 11, 1912.

change of fashion between the two countries, though Scottish architecture was impressed much more, as happened previously in the earlier Renaissance and Flamboyant Gothic.

The manners and morals of the age from whence we are starting had degenerated, and times were not particularly brilliant in 1821, when the "First Gentleman in Europe" ascended the throne; so in order to take our bearings it is requisite to glance back even as far as Stuart days to properly adjust the antecedents of Early Victorian art. Evolution in design had spent itself by the time of George III. No tradition worth mentioning remained, and our most accomplished achievements henceforward were due to individual example. Academicism had reigned long enough. "The Neo-Classical period," which has been divided, extended from 1666 to 1820—The Formative period, from 1666 to 1720; the Palladian period, from 1720 to 1790; and the Formal school, which ended in 1820. War and fire have generally contributed to the advance of architecture, and since the era of the Middle Ages the one outstanding event which had the most immediate influence upon subsequent building art in this country was the Great Fire of London in 1666. When this was given his opportunity, and although the governing authorities then failed to realise theirs in not adopting Sir Christopher's plan for the layout of the Metropolis, the great thing that did matter was his rebuilding of St. Paul's and his many churches in the City, not forgetting Greenwich Hospital. The second conflagration to be mentioned as of architectural import was the burning of the old Houses of Parliament in 1834. These two events, coupled in this way, define the beginning and the end of the "Neo-Classicism" of English building. Till the turn of the tide of fashion towards the closing years of the last century indigenous architecture became associated more or less with the "Gothic" and "Gothic Revival," and indeed was devoted fifty years to the "Classic work that it would have required an inspired prophet to have foretold the change which our children have witnessed, and no one could have thought it probable that the praise of Soane and his school would find expression in the early days of the 20th century. Belcher and Macartney's book on "The Later Renaissance" helped to bring about this swing in the pendulum. Long prior to the Georges, beauty, colour, and grace had succumbed, and art was clinical. Houses were grey, with flat roofs and hopelessly dull interiors, although some of the better sort exhibited a somewhat architecturally-contrived plan, recognising vistas by making one room lead out of the other. A reaction so early as the dawn of the 19th century evinced signs of activity; but so little was known of Medieval art comprehended that it was generally spoken of as the "English style," ignoring the splendour of Europe. Wyatt was building. "Fonhill Abbey," known as "Beckford's folly," on an enormous scale with puerile and petty detail; but an advocate registered when John Shaw erected the clever church of St. Dunstan's in the West, in Fleet-street, and added a respectable deception to Christ's Hospital in so-called "Gothic." The new courts of St. John's College, Cambridge, described as "a monstrous pile of ugliness," were put up by Thomas Rickman, the Quaker, to whom we owe the invention of the Norman style of the one English periods of architecture in his "Attempt to Discriminate," published with "The Classic Orders" as a preface, in 1819. Porden had built Eaton Hall, and Atkinson, a pupil of Wyatt, carried out Abbotford for Sir Walter Scott. Augustus Pugin, with Le Keux, informed the educated public by his illustrations of Normandy and other Medieval work, thus paving the way for the turbulent crusade against Pagan inconsequence so vigorously undertaken by Webb Pugin, whose graphic "Contrasts" and "True Principles" did so much service later on. His energy was attributed to what "Classicists" called his "Whimsey," while his critics applied to him the sobriquet of "Smell-fungus," and so "the battle of the

styles" began. Anterior to this event there lived, quite apart from this battlefield, a delicate and physically fragile individual of retiring temperament, devoid of technical training, who single-handed wrought a revolution by discovering and popularising the charms of the picturesque in such common things as old cottages, and so opened up the possibilities of simply befitting countryside domestic architecture by which English architects made a world-wide reputation long years after Samuel Proust, the man I mean, had been forgotten and reckoned as a bygone. What man of his century dreamed of the exquisite beauty existing in the unsophisticated, tumble-down, neglected smaller Tudor- and Stuart built dwellings of the husbandman before Proust made his brown-ink and red-lead "dotted and blotted sketches"? Piranesi, no doubt, and Rembrandt, too, with such studies as his "Mill," had extended influences, like Compton and others, towards the upper reaches of the higher forms of architectural picturesqueness, and Piranesi's Baroque compositions told in an imaginative direction. "The Beauties of England," edited by Britton and illustrated by Proust, filled a mission in the way I have indicated, at a time when our forefathers displayed an intense ignorance of architecture. Piranesi had a hand in illustrating the famous book by Adam on "The Palace at Spadaro," and it was years anterior to the birth of Proust, when Barozzi died, the cunningest, but this work was beyond the range of ordinary people.

At this time in France the reign of sound and considered Classic, inaugurated by François Mansart, who flourished at the same period as Inigo Jones, had well-nigh run its course, and things were shaping architecturally towards the chilly, pompous style of the Empire, which in a way was based on Palladian lines. Wood, of Bath, and Le Roy, of Paris, furnished the spirit of refinement in design which found expression in French buildings designed by Gabriel, also in London and Edinburgh by Robert Adam, the most tasteful architect of his day; but his manner, for varied reasons, failed to find many imitators. Thomas Leverton was associated with the layout of London squares. Sir John Soane, the master of commonplace Greek, and professor at the Academy, designed a scheme for the House of Lords, was much in favour, erected the Bank of England, and left a most excellent museum. John Gandon, pupil of Sir Wm. Chambers, displayed a much higher capacity when he won the competition and built the Custom House and Four Courts at Dublin. The expiring embers of the 18th century had not been extinguished without a sudden flash of the Baroque, the Rococo keeping count with the vagaries of the Ornamentalists, who fancied architecture consisted of so much applied ornament more or less. They published pattern books, and, seeking inspiration from Peking, also introduced red lacquer work for furniture and decorations. The culminating extravagance of George IV. were encouraged by John Nash when building the Regent's plaster-fabricated palace known as the Royal Pavilion, Brighton. This represented the vogue for extraordinary diversions which was thus exploited; but it was not at all vulgar. I know the building thoroughly, having added the public library and art galleries out of part of the old shell. At the period of which we have been speaking, houses of quality had Watteau panels and decorations framed with a fantasy of scrolls and ribbons, mingled with toyish birds and ambling monkeys, much esteemed as the height of good manners and elegance personified. It strikes one, in reading about the blatant rianette and expensive social comedy of Court life in Europe, then, how incongruous the modern conveniences of their everyday doings were, and their total disregard of the most elementary requirements of sanitation. The recognition of light and air was equally unthought of in the fusty upholstered, unventilated, pretentious dwellings of society, with their bric-a-brac better suited to the

decorations of a stage set, and designed to excite the taste of the aristocracy. Some of the more stately mansions of Sir John Soane, the architect of the Regent's Palace, and St. James's square, are marks of his refinement of plan; and S. P. Cocker, his architect, was a most cultured man. A few West End residences of the same date show the like distinction; but there was no prosaic order and colourless propriety about these decorous façades. James Wyatt, who acquired a long fortune, flattered Sir Walpole for his Gothic work, following on the Greek Italian style, designed the Pantheon, in Oxford-street; and Wyattville, R.A., invested, midst Edwardian surroundings, the incongruities of the Empire style at Windsor. His diploma drawing at Burlington House, showing a bird's-eye outlined view in bistre of a mansion for the Earl of Yarborough, dated 1826, is no mean performance. W. Wilkins, R.A., built the National Gallery, and the British Museum, and Sir Robert Smirke was commenced in 1823. John Dobson, of Newcastle-on-Tyne, erected the famous station there and laid out the town for Thomas Grainger.

Whatever niche may be accorded to Sir John Soane in architectural history, he will not be best remembered by the boxlike galleried tabernacles which he put up. St. Peter's, Walworth, filled him with such pride that he reproduced it later at Holy Trinity, Marylebone. The church was one of his best, and Walworth in 1821, when it was built, ranked as a fashionable suburb for the residences of merchants. St. Pancras Parish Church by the Hawks in 1822, famous for its Greek style, of course, leaves Soane miles behind; but then St. Pancras Church cost £100,000, and Marylebone Church cost nearly as much. University College, Gower-street, and W. Wilkins, R.A., from 1827 to 1830, years later, the Travellers' Club displayed a remarkable departure by Sir Charles Barry, who had then returned from Italy fully impressed with the Farnese Palace, and Wolfe, a pupil of Gwilt, had systematised his method of study, inducing him to forego his fancy for Egyptian hieroglyphs covering mural surfaces with enrichments. This inspired from Italc, Barry also designed the Reform Club in 1837, and Bridgewater House in 1847. His career from 1827 to 1847, as a designer, asserted itself in Barry's Gothic work, which will be mentioned later. Alluding to ecclesiastical buildings, he said—"I found the Evangelical clergyman very fluent preachers, with great ideas of erecting churches for nothing." Liverpool was embellished by the building of St. George's Hall, H. L. Elmes, a pupil of his father, being his architect, who died early. By his last wish Professor Cockerell finished the building of 1827, and left a most brilliant scholar architect, and exponent of the higher school of theoretical Classic, erected the Taylorian building at Oxford. George Basevi carried out the structural shell of the noble Fitzwilliam Museum, at Cambridge, and laid out Belgrave-square, Hyde-Park screen witnesses to the refinement of Thomas Burton, the architect of the Athenaeum and United Service Clubs, Pall Mall. Sir William Pitt commemorated the Royal Exchange in 1844, which, it is said, owed a natural parent not recorded in the register. The west side of Somerset House was added a little earlier by Sir James Pennemorth. A considerable influence on facade treatment about this time was due to France, one of the most useful and ancient materials; but elements are modern. As Government architects, John Nash, Sir John Soane, and Sir Robert Smirke had a reputation for 1700 a year, and was a very good consequence was done there were paid three per cent on the total cost of the building, which either of them had; show the Buckingham Palace Nash was paid five per cent, after 1826, when the salary was dropped; and Elme had the same when he built the east front in Buckingham Palace, road. Wyattville received five per cent, but his Windsor Castle job, but that included

the cost of coaches to and from Windsor. This expense must have been a considerable item for a man of his style and the conditions of travelling then. Sir Charles Barry made a bad bargain over his fees for the Houses of Parliament, having at the initial stage of his appointment agreed to a fixed fee of £25,000; but at that time the estimated cost was £800,000, exclusive of fittings and furniture, whereas the cost came to about £1,600,000, and the work took almost a lifetime to execute. Pugin was paid £200 a year by the Government to help Barry, who up to 1849 had furnished between 8,000 and 9,000 drawings. He also paid for some 3,000 casts of Medieval ornament. Ultimately, after years of negotiations and petty wranglings on the part of various Ministers of State, he had to be content with £25,000 and one per cent, grudgingly added for measuring, and on the cost of various heating projects which had given the architect endless trouble. Other architects were paid five per cent, as in the Pavilion at Brighton, British Museum, National Gallery, and Kensington Palace. Sir Gilbert Scott's fees on the House and Colonial Offices in Whitehall were five per cent.; but he had to prepare several schemes to satisfy Lord Palmerston, who obliged him to give up the Gothic design by which he won the competition in 1856 as settled by a Commission. The awards really were in favour of H. B. Gurling for the War Office and Coe and Holland for the Foreign Office, Scott being third, who was right. Scott's was put in for the India Office. It was necessary to say this here to explain the want of facts in reference to a controversy extending for years. The emblems of the Whitehall front have not yet been built, an omission which spoils the building, and is a great injustice to Sir Gilbert Scott. The cost of the Law Courts, in the Strand, came to £871,266, on which amount G. E. Street was paid £35,000, or about four per cent. I cannot tell you what was paid the National Gallery Museum cost, and what the rate of its architect's fee, owing to variations and deductions; but so far as Mr. Paul Waterhouse has been able to ascertain, five per cent, approximately was the scale of remuneration. This equity cannot conveniently be extended to more recent contemporary public works, as the architects might consider it too inquisitive, and with the War Office and Public Offices completed by the Office of Works, and the early decease of Wm. Young and J. M. Brydon, the application of these findings as instances in point is precluded.

To judge fairly we must not forget the outlay when the erection of the new Palace at Westminster, aided by the Oxford movement, opened up an opportunity for newer notions. Religious worship inspired the poets, poets of John Keble, and the tractarian influence of Franks, Newman, Pugin, and others gave a progressive power to church and allied building. James Savage had some time to spare only St. Luke's Church, Chelsea, 1824; St. Peter's Church, Brighton, by Charles Barry, built up in 1826; and J. C. Buckler designed Goswells Hall, Norfolk, 1825.

R. Abrahams had built the Middle Temple Library some while when Welby Pugin designed St. George's Cathedral, Southwark, in 1840; and in the same year the Church of St. Stephen, Rochester Row, was built by Benjamin Edwards, and following the erection of St. Andrew's Church, Wells, street, by S. W. Dawkes. The Hall and Library in Lonsdale Hill Fields, by P. Hardwick, date from 1843, though it is said he did not really design them. When the Government advertised the Houses of Parliament competition in 1853 the conditions prescribed "Elizabethan or Gothic." Four premiums of £500 each were offered, and thirty-seven competitors sent in plans. Charles Barry won the prize, and, at forty years of age when King William IV. confirmed the award of the Commissioners and elected him architect early in 1856. The Classicists fought against the victor, and Welby Pugin, who had not competed in his

own name, plunged into the subsequent fray with all the ardour of his enthusiastic temper. Barry and Pugin had previously cooperated when King Edward's school at Birmingham was built in 1833, and it was in that building that Barry discovered Thomas, the stone carver who carried out so much of the work at Westminster. The controversy as to how far Welby Pugin was the author of the Houses of Parliament ended as it had begun—in the conclusion that the general conception and magnificent layout of the plan belonged to Barry, and that Pugin carried it out. The foundation-stone was laid in 1859.

(To be concluded.)

THE ARCHITECTURAL ASSOCIATION.

A combined meeting of the Architectural Association with the Junior Institution of Engineers was held at 18, Trafton-street, Westminster, on Monday evening, the chair being occupied by Mr. Gerald C. Horsley, R.I.B.A. Messrs. F. Jackson and H. V. Simpson were elected as members. The President said that it was with very much regret he proposed a vote of condolence to the relatives of their old friend,

THE LATE MR. T. M. RICKMAN.

their senior Past President, and one of the founders of the Association in 1847. At the opening of the present session the Council sent a letter of invitation to the inaugural meeting to Mr. Rickman, reminding him that he occupied the presidential chair so far back as 1854, and had outlived twenty gentlemen who had succeeded him in that chair. Mr. Rickman sent an appreciative reply, regretting his inability to be present, and his years recovering from a very serious illness, and illness which all were sorry to learn terminated fatally last Saturday. The motion was agreed to, the members silently rising to express their sympathy and regret.

BRIDGES.

The President offered a cordial welcome to the members of the Junior Institution of Engineers, who were paying them their biennial visit to discuss the subject of bridge construction. In alternate years the Association paid a return visit to the Institution, to consider some question of mutual interest to both professions. He could ask Mr. Paul Waterhouse, M.A., F.R.I.B.A., to open the discussion on the subject, and invite all present to take part in the proceedings.

Mr. Waterhouse exhibited on screens a series of water sketches of bridges in Great Britain and on the Continent, which had been made by his father, the late Mr. Alfred Waterhouse, R.A., and which had never previously been shown. He proposed to put his remarks on the form of the sketches between two friends, and would produce the sketches as lantern slides, to illustrate the points raised in the imaginary discussion.

In a brilliant dialogue depicted as taking place between two architects, John Pargeter, "who possesses to an unusual degree the power of understanding the inner meanings of our historic and ancient art," and Harper, "who is rather too much the slave of his professions" (which the design and the space forced us to give in full), Mr. Waterhouse inquired why it is that the beauty of old bridges fail to impress us. It must be, it was suggested by Pargeter, because familiarity breeds contempt, and, therefore, even miracles cease to be miracles when they are familiar; once included in the realms of Nature they retire from the realms of the marvellous. Still, he contended, architecture of heavy iron bridges leads us to the conclusion that beauty in their case is merely fitness, and that our notions of applying architectural trappings to what is

really a mechanical—in other words, an engineering—device or expedient are generally a foolish waste of entirely misapplied ingenuity." Pargeter admitted that Harper's first statement gave a pretty complete definition of architecture, but retorted that bridge construction, as usually carried out, was, in the nature of the case, not architecture, but engineering. For the building of so important and conspicuous a fabric an architect the best that could be found—should be employed, and never a man, having under him, among many underlings, the best engineer he could get.

"Oh, come," said Harper, "I'm all for giving architects their due; but I should never think of putting the engineer second in a case where the use, and even the beauty, of the structure depends upon that nice adjustment of material to function which only a highly-trained engineer can calculate."

"Then, come more," said Pargeter, "I consider that your ideas on architecture and architects are at fault. Any architect who is worth his pay, by which I mean any architect who is an artist, and who is really worth his pay, is one who has something to express. Architects are expected to have an almost encyclopaedic knowledge; but even the best-equipped architect will, if he is wise, continually consult the chiefs of his little army of craftsmen on the methods which will produce the best results in the lines on which each is a specialist, and that is exactly what the wise architect would do with the engineer, and the wise engineer would fall in ungrudgingly with the architect's consultant but still supreme attitude.

The relative positions of architect and engineer which I here suggest involve no possible degradation to the profession—the noble profession—the constructional engineer." The lecturer from this point proceeded to bring before his imaginary controversialists a long series in the evolution of bridges, from the first rude log bridge, or rope of deep chasm by felling a tree to lie in a line with the opening to be spanned, or slinging thongs of bullocks' hide across the stream from tree to tree, to the latest development in cantilever structures. The examples cited and discussed (and shown as lantern slides) included the Roman aqueduct at Nîmes (le Pont du Gard) and the Roman Pons del Diavolo at Barcelona, a bridge thrown across a deep valley over the Pyrenees by the military engineers under Napoleon; the Ponte Vecchio at Florence, the Francongate Bridge over the Wear at Durham, Conway suspension bridge, the Medieval and not dissimilar bridges at Monmouth and Nuremberg, the Rialto at Venice, an old bridge at St. Chamas, the purely ornamental Palladian structures at Wilton and at Prior's Park, Bath; the boldly conceived Ponte del Suvasso on the river Tiber at Rome; the Limburg, and those spanning the Thames at New and Kingston. The grand bridges at Toledo and the towered structure at Prague were contrasted with that at Charing Cross and "that which exudes from Cannon-street Station like a slug from its loathsome lair." In his closing sentences, Pargeter was represented as saying that art and skill had conquered Nature and force; but that man? What of the old world and the Divinity that now stood over him? Was there nothing in that thought? And even, apart from this, he said, if you don't care for Christian imagery and take no account of Pagan mythology, you still must have some faith in the doctrine of outward and visible signs. These "books in the running brook, sermons in stones, and good in everything," that Shakespeare tells of are very real, and to all his the human mind is more intelligible, very readable. "Depend upon it," said Pargeter, "every bridge has had a bridge-maker, a pontifex, and every pontifex is a priest, and every priest has his message. Nationality, character, mood, temperament, welcome, defiance, joy, gloom—all these are songs that a bridge can sing. But through them all, and with them all, it sings by its mere being, by its mere act, the song of the passing, the song of the river crossed, the song of the coming over, which is an overcoming. And for those that overcome there

is a crown." We two, added the lecture, came out from Pargeter's room and said good-bye. I walked home with Harper. We didn't talk for some time. Then I said, "You rather curbed our friend once or twice; but I dare say you did well, or meant well, in bringing him down to earth. Anyhow, I know he never thinks the worse of you for it." I said this because I thought he might be feeling remorseful. His reply rather astonished me. "I don't care," he said, "what Pargeter thinks, for I am sure that in all I have said I was perfectly right."

Mr. W. H. Dunn, Chairman of the Junior Institution of Civil Engineers, in proposing a vote of thanks to Mr. Waterhouse, said he thought the visitors had come, expecting to hear a paper on the materials and construction principles of bridges, and not upon their picturesque qualities. The allusions to the beauties of Charing Cross Bridge had raised a smile; but he should like Mr. Waterhouse to sketch for them a really beautiful structure to carry at a low uniform level over the Thames many lines of railway.

Mr. H. Heathcote Starham seconded the vote of thanks, remarking that they had heard much that evening about the poetry and picturesque qualities of bridges. Architects preferred bridges that had no attempted architectural adornment added to them. The Fourth Bridge, for example, would be spoiled by any attempt to clothe its skeleton.

Mr. Waldron, Mr. J. J. Burnet, Mr. Percy Young, Mr. Arthur T. Epton, Professor Philipotts, Mr. H. W. Fitzsimons, and Mr. S. Bylander followed, and the President added a few words of thanks to Mr. Waterhouse, who thanked his hearers.

THE R.I.B.A. AND ARCHITECTURAL COPYRIGHT.

The following report of the Royal Institute Committee on Copyright was presented to the Council at their meeting on Monday, February 5, and was unanimously adopted:—

The Act has amended and simplified in a very satisfactory way the principal clauses relating to architecture in the draft Bill. The amendment to Section 2, proposed by the Royal Institute, is adopted, and the word "plan," which is inserted, appears, with the context "sketch" and "study," to render the architect's position safe with regard to both preliminary and working drawings.

The amendment proposed to the definition of "architectural work of art" in Section 35 was adopted by adding the word "model." The Attorney-General stating that in his opinion the words "drawing plan" were unnecessary, as being covered by the definition of "artistic work" and the amended Clause 2 already referred to.

The vexatious and impracticable dual ownership of copyright by the employer and the architect, which was proposed by the draft Bill, has been abolished, and the copyright in architectural work belongs to its designer, as desired by the Royal Institute. The suggestion (arising out of the dual ownership) as to an amendment of the R.I.B.A. Schedule of Charges, which appears in Clause 4 of our interim report above referred to, may not now be necessary.

The photographing and drawing of buildings is (partially) protected by the addition of the words "which are not in the nature of architectural drawings or plans," this also being an amendment proposed by the Royal Institute. On the other hand, our very much more widely-extended amendment to Section 9, by which discretion with regard to certain penalties was left to the Courts of justice, was refused.

Registration, as prima-facie proof of copyright, which was optional in the draft Bill, is not required at all by the Act; and the amendment proposed by other representative bodies, and supported by the Royal Institute of British Architects, became unnecessary.

We subjoin, in extenso, for your reference the text of the clauses of the Act directly affecting architects, together with an extract from his Majesty's speech referring to the general aspect of the measure.

The effect of the Act may be broadly stated as follows:—

Under Architecture, as it is now defined, under the definition of "artistic work of art" is included in the same protection as painting and sculpture.

(a) The right to repeat or reproduce his work belongs to an architect as from the moment of its first production, whether in the form of a drawing, model, or building.

(c) Although the copyright may have been sold by an architect, he remains free to use the sketches, plans, models, or studies made by him for the purposes of his work, provided he does not repeat the main design.

(d) Measured drawings of his building may not be made or published without his permission.

(e) Copyright subsists for the life of the author and fifty years after his death. (Clause 16 deals fully with cases of joint authorship.)

(f) In the case of work done by an architect in the course of his employment under a contract of service (e.g., the official architect of a corporation), the copyright belongs to his employer.

(g) An architect whose copyright has been infringed is entitled to claim damages, but cannot obtain an injunction to restrain the erection, or an order for the demolition, of a building which has been already commenced.

Your Committee respectfully recommend:

(1) That advantage be taken of the first opportunity offered for revision of the Act, to press, (a) for the amendment of Clause 9, on the lines indicated in the letter of the Royal Institute of British Architects to the Board of Trade of November 16, 1910; and (b) for further protection as regards the publication and sale of photographs of copyright work. It would be reasonable to require the approval or permission of the author in such a matter.

(2) That the thanks of the Council be conveyed to Lord Plymouth and to Lord Redesdale (Hon. Fellows, R.I.B.A.) for their support and defence of the interests of the profession during the debates on the Bill in the House of Lords.

(3) That your Committee, having now fulfilled the terms of their reference, be discharged.

On behalf of the Committee on Copyright.

JOHN W. SIMPSON, Chairman.

ROYAL ACADEMY EXHIBITION, 1912.

Days for receiving works: Water-colours, pastels, miniatures, black and white drawings, engravings, and architectural drawings, Friday, March 29.

Oil paintings, Saturday, March 30, and Monday, April 1; Sculpture, Tuesday, April 2.

Not more than three works may be sent by any one artist. No work will, under any circumstances, be received before or after these specified dates. All works must be delivered at the Burlington Gardens entrance. None will be received at the Piccadilly entrance. Hours for the reception of works, 7 a.m. to 10 p.m.

WHAT MAKES WHITE-LEAD CHALK, AND HOW CHALKING MAY BE PREVENTED.*

By HENRY A. GARDNER, Assistant Director, the Institute of Industrial Research, Washington, D.C.

CHALKING AND REPAINTING.

The chalking of white-lead is one of the evils attending the use of this valuable white paint pigment which the master painter is most anxious to correct. Every fair observer will probably admit that moderate chalking is not objectionable, as it leaves a surface for repainting which will quickly receive and amalgamate with the new paint applied, this result being difficult with an old painted surface which is excessively hard or brittle. Excessive chalking, however, which is often followed by deep alligatoring and gradual

disintegration, is a serious defect, and one which is not only unsightly, but also a source of danger to the public. It is a well-known fact that white-lead paint, when applied in a thin coat, is very liable to chalk, and that the chalking is more rapid when the paint is applied in a thick coat. The chalking is caused by the oxidation of the lead, and the formation of a layer of lead carbonate on the surface of the paint. This layer of lead carbonate is very soft and crumbly, and it is this which causes the paint to chalk. The chalking is more rapid when the paint is applied in a thick coat, because the lead carbonate has more opportunity to form on the surface of the paint. The chalking is also more rapid when the paint is applied in a thick coat, because the lead carbonate has more opportunity to form on the surface of the paint.

ON CONSERVATION OF OIL IN LINED OIL.

It has been stated in the pamphlet referred to that the chalking of white-lead is caused by the lack of linseed-oil, and that chalking would not take place to any extent if the lead paints were mixed with greater quantities of linseed-oil. From an economical standpoint, it would appear to the writer that if painters were to follow the above suggestion and use greater quantities of linseed-oil than is at present the prevailing practice, the effect would not be towards relief from the present high prices which must be paid for pure oil, and might not only encourage the use of linseed-oil substitutes which have not been thoroughly tested, but actually lead to the use of such substitutes.

SHORT OIL AND LONG OIL REDUCTIONS.

It has further been stated that not only the priming coat of white-lead, but the top coat as well, should receive very long oil reductions in order to form a film which would protect the pigment from the elements, which are the initial cause of chalking when lead is applied with the usual short oil reduction. The application of ordinary white-lead paint has been compared with the application of short oil varnishes which contain quantities of gum with very little oil, the analogy suggesting that the same enduring results which are obtained on the use of long oil varnishes could be obtained if lead paints were reduced with quantities of oil. Commenting on the above procedure, it would appear to the writer that the use of larger quantities of oil than are at present in common use would result in a paint deficient in hiding power and strength. Furthermore, the comparison of varnishes with paints is not justified, as a varnish which consists of gums dissolved in oil is an entirely different material from an oil in which pigments are simply suspended. Both of these materials must be studied along separate lines, as they are physically and chemically different.

AMOUNT OF OIL DETERMINED BY PIGMENT.

It is well known that linseed-oil—or, in fact, any oil—when spread into a paint film, is a chalking which upon exposure does not possess any very great strength or moisture-excluding power. When linseed-oil, however, has been ground with pigments, the strength of the films is increased materially, and the greatest strength is developed in those cases in which a critical percentage of pigment has been added to the oil. The critical percentage varies with the nature of the pigment, a small quantity of some pigments being sufficient, while a large quantity of others is necessary, in order to produce films of maximum strength. An average paint consists of 10lb. of pigment suspended in one gallon of oil; but the writer has in mind a present a paint made from 35lb. of pigment suspended in one gallon of oil. This pigment—namely, American vermilion (basic chrome of lead)—is probably the lowest oil-carrying pigment ever produced or applied under actual practical conditions, and to-day, after nearly four years' exposure, almost the Atlantic coast, where it has been subjected to the most severe atmospheric conditions, it is in almost perfect condition, showing absolutely no chalking. Being a lead pigment, and being applied with a shorter oil reduction than white-lead has ever been applied with, the result would seem to dispose of the theory advanced that white-lead should be applied with longer oil reductions. If the amount of oil, and hence

* Read before the Convention of the Pennsylvania State Association of Master Painters, Scranton, Pa., Jan. 18, 1912.

CURRENTE CALAMO.

The Committee on Copyright appointed by the R.I.B.A. have presented their Report, and they are certainly entitled to take credit for the good work they did in assisting to bring about various amendments in the Bill. The word "plan" was added at their suggestion, and, taken with the other words, "sketch" and "study," would probably cover all that is intended. But we still do not see why the word "drawing" could not also have been inserted, as it could have done no harm, and might have been useful. The addition of the term "model" was obviously required, and has now been accomplished. The striking out of all dual ownership in Copyright by employer and architect seems to us the most important change effected in the Bill. It would obviously have been both vexatious and impracticable, and must have led to litigation. Copyright in architectural work belongs to its author or designer. The word "author" is used in the Act, and it is better than "designer," because the term "design" is already applied legally to quite other things, not necessarily of an artistic character.

The Committee say very fairly that the Act has "amended and simplified in a very satisfactory way the principal clauses relating to architecture in the draft Bill." The optional registration, as *prima-facie* proof of Copyright, has been dropped, as not being needed. The result is that the author of every original artistic work has the copyright in himself. This right arises essentially from the fact of his being the author, or creator, of the work itself to which copyright attaches. When his copyright is infringed he will have to prove its existence, and this will, in effect, be done by producing the work which he has created. The author is made the first owner of copyright, so that, in his case, the proof of that right carries with it his title to sue. Where there has been a sale or assignment of the copyright then title must be proved from, and through, the first and true owner of the work. We have here the simplest principle of property, freed from any question of obtaining copyright by user, publication, registration, or otherwise. But it will be interesting to see, after July 1, how this right principle will work out in practice and in business.

It should be noted that Copyright accrues to the author of "every original artistic work." It is likely that when questions of infringement come before the Committee there will be a good deal of argument over the construction of these words. Of course, "original" is not used in the absolute sense; but it would seem that at all events relatively there must be something original, or unusual, or uncommon in the work itself to give it copyright, although this may only be in the new combination of old ideas. Then it must be "artistic" in itself. Now, "artistic" is certainly a wide word of many meanings, and one can foresee much debating, though doubtless the term will soon settle down to a sensible interpretation. But there is a sort of double definition given to an "Architectural Work of Art," for this is to be a building "having an artistic character or design, in respect of such character or design." The clause also goes on to say that copyright is confined to these points, and shall not extend to processes or methods of construction. Ironical people, looking about

some of our cities and towns, might say that artistic character and design were not very visible in their architecture. We are much better nowadays, but the point remains that the author of an architectural work will, in future, have to do something rather original and artistic to earn his copyright.

It is worth noting that some of the better-class building societies are fairly confident that things are brightening for builders. At its meeting on Tuesday the chairman of one of the local societies congratulated its members that its addition to the reserve fund was the largest for some years, and justified the directors in extending the 4 per cent. allowance to another two years' investors' accounts—on all accounts opened prior to January, 1896. The society had made more profit by doing a steadier business. He also pointed out that while the number of new houses built last year in Birmingham was, according to the official return, 2,714, and much below the normal number, if the reduced rate was continued there would be, in the near future, an increased demand for small houses. It was worthy of note that an increase was found to be among houses at 6s. 9d. per week. Houses at 5s. a week showed an actual decrease. We have no doubt ourselves, as the vice-chairman remarked, that as soon as people have become accustomed to the changes brought about in connection with its ownership, those who have made prudent investments in land will reap the benefit, and that house property must, in the very nature of things, become, as of old, a good market for the thrifty, saving classes of the country.

Lucky lawyers! There is a battle of the bungalows on at Heacham, Norfolk. Heacham is between Sandringham and Hunstanton, and many bungalows are built on the shore. The overseers of the parish raised the assessments of the bungalows, and the owners rebelled, instructed counsel, and won. The parish now has over £200 legal costs to pay. But that only marks the first round. The owners, in defending their case, argued that no water supply existed, and no sewerage system. Now it is also alleged that overcrowding takes place in the bungalows. So there is a movement to force them to be kept closed as unfit for habitation.

Mr. Lloyd George last Monday addressed at the London Opera House a crowded meeting organised by the National Liberal Federation, and dealt with the Insurance Act. The Master of Elibank intimated that the Act is to be made a party issue. We are very sorry for that, and so will the Government be at the next election. The Bill was introduced, with an appeal to all parties and sections to make it a workable measure, and then forced through over the heads of all who wanted to help. We have nothing to do here with what Mr. George denounces as "Tory misrepresentation"; we have only to deplore the fact that he is so foolish as to stigmatise the refusal of the medical men of the country to become parties to disastrous failure as "inipetitude," and that he still does not know the meaning of his own Act. He said on Monday that the insured would receive the amount representing medical benefit through their societies. That is not so. The Act rules that the Commissioners are to pay direct to each insured person the estimated cost of his medical benefit, which

is not the same thing at all. Again, this power of suspension is only conferred when and where the practitioners in any list are not such as to secure an adequate service in any area. Where are there likely to be such lists?

Whether it will hasten the general adoption of cremation or not we do not know, but evidently graves are likely to be one sort of luxuries like most other things, and Mr. Lloyd George remains at the Exchequer much longer. Mr. Arthur C. Lyndham tells a story in the *Times* of Tuesday of a client of his firm who desired to transfer a grave to another member of the family, and for whom he prepared the necessary deed of transfer. Prior to the Finance Act, this document would have been stamped with a deed stamp of 10s. as a voluntary deed, but under section 74 of the Finance Act, "any conveyance or transfer operating as a voluntary disposition inter vivos shall be chargeable with the like stamp duty as if it were a conveyance on sale with the substitution in each case of the value of the property conveyed or transferred for the amount or value of the consideration for the sale." Under this section this simple transaction necessitates the valuation of a grave in order to have the document properly stamped.

So the deed was prepared, and submitted for adjudication, when the authorities demanded: "Is this a voluntary disposition? If so, state value of rights transferred." Mr. Langham's firm replied: "It is a voluntary disposition. Cannot ascertain value; please refer to the chief valuer." They were then told that it could not be referred to the chief valuer, and that they must place a value upon it before the document could be stamped. Of course, it would be quite easy to make a guess at the value, but this will not be the value; and why should anybody be required either to adopt this course, which is not a proper one, or else employ a valuer to make a valuation? If a valuer were employed, he could, of course, ascertain by inquiry what the grave cost originally, and how many people it was intended to hold, how many have been buried in it, and, with an actuary's aid, might perhaps ascertain the present value of the grave to the estate of the owner when he passes to the land where it is to be hoped Lloyd Georgian taxation is not; but even then the owner may be buried at sea or in some distant country, so that the grave is of no value even to his estate when he dies. Probably the valuer would have to take the value of the monument into account; if so, would the value have to be taken at the price it would fetch in the open market? If, however, the grave is to be valued for the purposes of stamp duty on deeds, it must also be valued for the other purposes of the Finance Act for increment value duty, undeveloped land duty, and estate duty. It would be interesting to know whether the chief valuer has given his attention to this problem of the valuation of graves, and what course he has adopted with regard to them.

Part I, Vol. XI, of the Proceedings of the Rhodesia Scientific Association is devoted to a long and interesting paper read last year before the Society by Mr. Francis Edward Masey, F.R.I.B.A., entitled "Zimbabwe: An Architect's Note on the Ruins." Mr. Masey, who was employed by the Rhodesian Government to report on the ruins in 1909, mainly

confines its influence to the Temple, and of its date. There have been some controversies about this matter, principally between Mr. R. N. Hall and Mr. D. Ransom Milver, whose conclusions, as many readers know, differ, and hardly seem founded on evidence that would satisfy an architect. Mr. Massey, after actual excavations and careful examination, thinks his evidence may go a little way to reconcile the diametrically opposite points of view of Mr. Hall and Mr. Milver. Mr. Massey tries to show, firstly, that unmistakable indications exist, not of one civilisation or race, but of a permanent and continuous occupation of the country. Secondly, that the peculiar and eccentric shapes of many of the remains have been dictated by some economic reason or practical necessity, such as self defence, carried out by the people of the country as well as natural resources allowed, rather than due to any mysterious requirements of antique religious cult introduced from abroad. Thirdly, there are indications that the practice of Baal worship, though originally introduced through contact with some race from the north, had been carried on subsequently by the natives of the country, resulting in the same degeneration from the original model as may be seen in the instance of Christianity after its introduction into Abyssinia. So, Mr. Massey thinks, we may see in these ruins the remains of an ancient African rude civilisation, but affected by foreign influence, perhaps contemporary with, and not more unaccountable in its features, than those of Mexico or Peru, and the study of which, as Mr. Milver points out, should be rather more, than less, interesting on account of its parentage, in view of the relations which seem to have existed between it and Mediterranean civilisation during one of the most interesting epochs of the world's history.

LONDON COUNTY COUNCIL.

The announcement was made at Tuesday's meeting of the London County Council that the King had consented to lay the foundation-stone of the new County Hall on Saturday, March 9, at 12 o'clock noon. The Education Committee reported to the Council that work is proceeding in connection with the erection of two new central schools and four new secondary schools, and the enlargement of three elementary schools. The total additional accommodation thus provided will amount to 2,535 places, at an estimated cost of £145,326. Five schools are being structurally improved by the provision of halls, etc., at a cost of £63,100, and one school is being rebuilt at a cost of £18,026. Tenders have been accepted for the following works: Painting work at two and cleaning work at fifty elementary schools, at an estimated cost of £31,715; the improvement of the means of exit by the extension of staircases, etc., at three schools, and the provision of an external iron staircase at one school, the tenders amounting to £509; heating work at seven elementary schools, a training college, and a place of detention, at a total cost of £1,802; the improvement of lavatory accommodation at an industrial school, at a cost of £137 10s.; and the installation of electric lighting at one elementary school, the amount of the accepted tender being £269. The erection of new premises for the London County Council School of Photo Engraving and Lithography is in progress in Bell-court, Fleet street, E.C., the amount of the accepted tender being £15,013. Two handicraft centres and three domestic economy centres are in course of erection and a gymnasium and art room are being erected at the Avery Hill Training College, the total estimated cost of the work, exclusive of that at Hoxton House, being £1,650.

Our Illustrations.

NEW CATHOLIC CHURCH, SHERINGHAM, NORFOLK.

This church, consisting of nave, chancel, aisles, and transept, is built of thin red sand faced bricks, with Weldon stone for the windows, doorways, and arches, etc. Inside the building the walls are plastered. The roofs of the aisles and transept are covered with greyish red sand-faced tiles, while the roof of the nave, which is of rather flat pitch, and concealed behind a parapet, is covered with slates. The simple king post construction of this roof shows in the church, and is decorated in colour. The sanctuary has a black and white marble floor, and the altar and reredos are also of marble. The reredos is coloured and gilded, and beneath the altar is a carved wooden reliquary-case, similarly ornamented. There is also a large hanging rod marking the junction of the nave and chancel. The length of the church inside is 61ft., and the width 34ft.; the transept is 22ft. long and 20ft. wide. The cost of the church was about £2,700. The contractors were Messrs. Nichols Bros., of Oakham. The reredos was made and carved by Mr. G. Ratcliff, of 2, Mallow-street, Old-street, E.C., while the colouring and gilding were carried out by Mr. G. Tosi, of 58, Beauchamp-place, Brompton-road, S.W. The roof and reliquary-case were made in the Austrian Tyrol, and were decorated by Mr. Tosi. A proshytery has recently been built adjoining the end of the transept. The vestries are situated in this building. Mr. G. Gilbert, architect, of Gray's Inn-square, is the architect.

NEW SECONDARY SCHOOL FOR GIRLS, YORK.

This school is planned to accommodate 400 girls; but only a portion of it has been built at present, with classroom accommodation for 270. The scheme is so designed that the additional accommodation can be added at any time without interfering with the part already erected. The plans herewith illustrate the general arrangements. The building is of the "central-hall" type, with the classrooms grouped around it. The main block is two stories in height, and the projecting wings contain the laboratories, domestic science room, scholars' dining-room, etc. Entering the building at the principal entrance on the north side of the building, the principal's room is one side, and the students' library on the other. The central hall is 61ft. long by 34ft. wide, and of two stories in height, with a gallery along its south side, from which the upper classrooms are approached. There are twelve classrooms grouped round the hall, into each of which the sun shines during some of the school hours. At each end of the building, and near the entrances from the playground, are the cloakrooms, changing-rooms, lavatories, and the staircases to the upper floor, all properly warmed and fitted. One of the classrooms is fitted as a botany room, with sink, dark-room, etc. A studio, 44ft. by 20ft., for drawing classes, is arranged on the first floor, with special north light. The building is constructed as far as possible on fire-resisting principles. The main walls are of brick laid with red sand faced bricks. The floors are of concrete, finished with wood or cement, as their use requires. The roofs are tiled, and the window-sashes and cornices, etc., are of wood painted white. The playground has space for four tennis-grounds—two of asphalt and two of grass. A garden is also arranged on the south of the building for the practice of botany and horticulture. The lower and adjoining part of the site is utilised as a playing field for hockey, etc. The building is warmed throughout by "low-pressure" hot water with ventilating radiators. Open fires are provided in the rooms devoted to special studies. The general contractors were Messrs. W. Airey and Son, of Servia-road, Leeds, and the building was designed and erected under the superintendence of Mr. Walter H. Brierley, F.S.A., architect, York.

BORDEAUX CATHEDRAL PORTAL. NATIONAL MEDAL DRAWINGS.

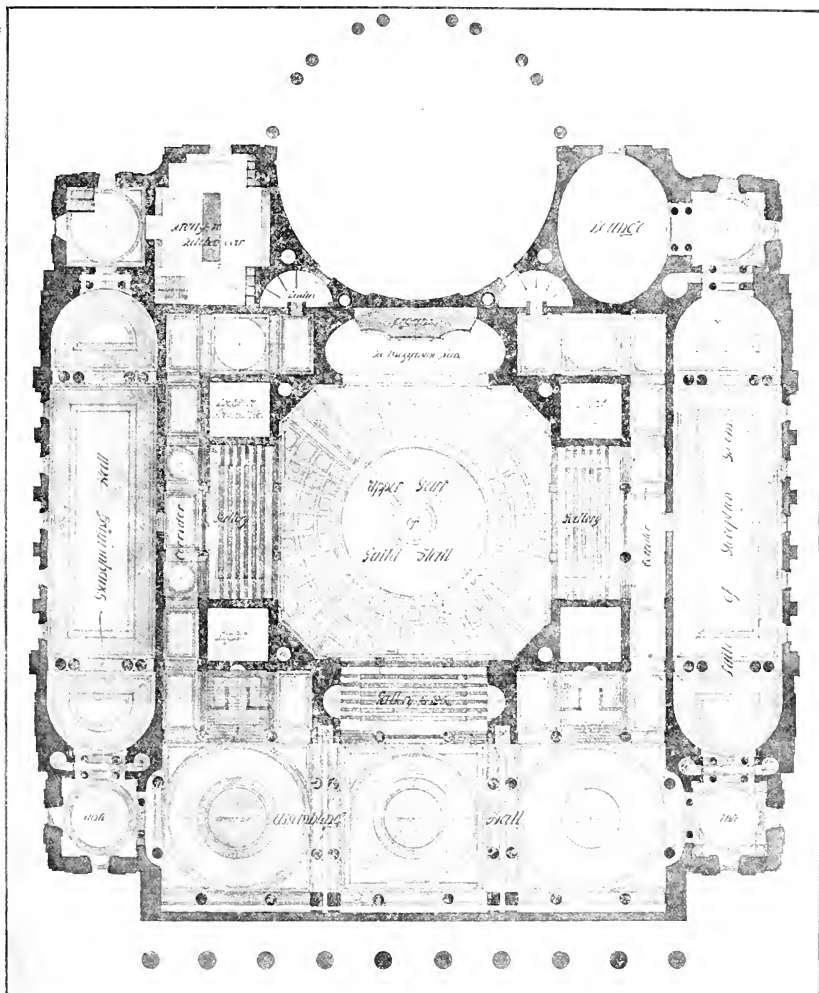
"This portal to the cathedral is situate at the end of the north transept, the typical position for doors of this period. The jambs of the entrance are enriched by four groups of three engaged columns, and between each group is a sculptured figure, thus giving three figures on each jamb. These figures, which are 6ft. 1in. high, are dignified by being placed under canopies, which have vaulted roofs. The arch-mouldings carry up the lines of the columns of the jambs, and between each set are sculptured figures 2ft. high, each statue having its own canopy, similar, but smaller, to those over the larger ones below. Natural foliage is carved on the mouldings of the arches, which are crowned with a head-moulding similarly decorated. The tympanum has sculptured reliefs representing the Last Supper and the Ascension into Heaven. The figure on the centre pier of doorway has more work bestowed upon it than the others, and this concentration of finish is typical of doorways of this kind. It has a richer canopy than the other figures. The cathedral is well known for its period, the remarkable example of its period. The western part of the church forms a vast nave without aisles, 60ft. wide and 200ft. in length. It was originally roofed by three great domes; but on being rebuilt in the 13th century it was covered by an intersecting vault, with a fine array of flying buttresses outside to support its thrust. The cathedral possesses a characteristic chevet of five chapels, and two spires of great beauty at the ends of the transept, a very uncommon feature in France. Modern additions of chapels in the 19th century. Modern additions of the nave are shown by dotted lines on plan." The author of these drawings is Mr. W. A. Ross, who sent us the above notes. He was a pupil of Mr. C. A. Mitchell, A.R.I.B.A., and assisted him during rebuilding of the Polytechnic in Regent-street, W., now nearing completion.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: SOANE MEDALLION COMPETITION PRIZE DESIGNS.

The detail which we now give of Mr. Friskin's prize design was intended, like the two accompanying plans, to have been given last week when we published each of the prize designs by reproducing both of their elevations and their ground plans. The first-floor plans herewith printed complete our illustrations from this competition, and the descriptions which appeared last week, as sent us by Messrs. W. Friskin and P. de Jong, leave nothing more to be added here.

OBITUARY.

We regret to announce the death, on Saturday last, at 10, Phillimore-gardens, Earl's Court, of Mr. Thomas Miller Rickman, F.S.A., F.S.I., the leading member of the quantity surveyors' profession, and for very many years in practice in Montague-street, Russell-square. Mr. Rickman, who was eighty-four years of age, was the son of Thomas Rickman, the author of the "Attempt to Discriminate," which, when published in 1849, set all men theorising as to the development of Gothic architecture and paved the way for the Gothic Revival. The late Mr. Rickman applied himself to the prosaic field of quantity surveying, and obtained, by assiduity and reliability, an extensive practice, his clients including Messrs. Alfred Waterhouse and Son and many other distinguished architects. For many years he had been the senior member of the Royal Institute of British Architects, having been an Associate of that body since 1854. He was also one of the oldest members of the Architectural Association, having been elected some sixty years ago, and serving as President in 1854-5. In 1859 he occupied the presidential chair of the Surveyors' Institution, and had been for many years an Associate of the Institution of Civil Engineers. The interment took place at St. Pancras Cemetery, Finchley, on Wednesday



ROYAL INSTITUTE OF BRITISH ARCHITECTS. SOANE MEDALLION COMPETITION, 1912.
 CERTIFICATE OF HON. MENTION AND £50. PRIZE DESIGN by MR. PIET DE JONG ("Anne").

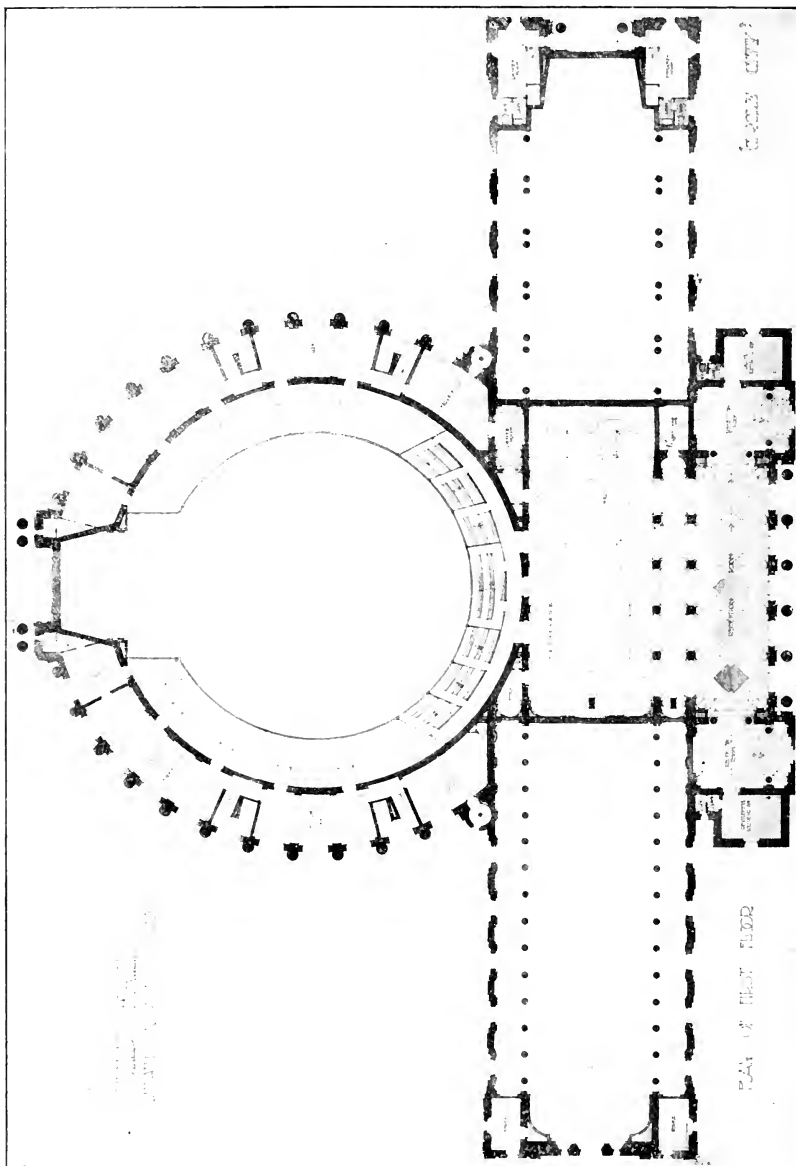
afternoon, and a commemoration service was held at the Catholic Apostolic Church, Gordon-square, yesterday (Thursday) morning.

Mr. Alexander Graham, F.S.A., for many years the genial hon. secretary of the Royal Institute of British Architects, an appointment which he resigned in May, 1909, owing to increasing deafness, died at Carlton Chambers, Regent-street, W., on Friday last, at an advanced age. He carried out some important buildings, including premises faced

with terracotta for Messrs. Howell and Jones in Regent-street, and the Sandelbridge Colony for Epileptics. It will be recollected that the latter group of buildings were afterwards attacked by dry rot, and that in May, 1908, the building owners, the David Lewis Trustees, brought an action for alleged neglect of ventilation against Mr. Graham, who, on the advice of counsel, agreed to pay an undisclosed sum in settlement. Mr. Graham, who was an accomplished water-colour draughtsman, was of recent years fre-

quently engaged as an assessor in competitions, the most recent instance being that for the infirmary buildings at Rochdale.

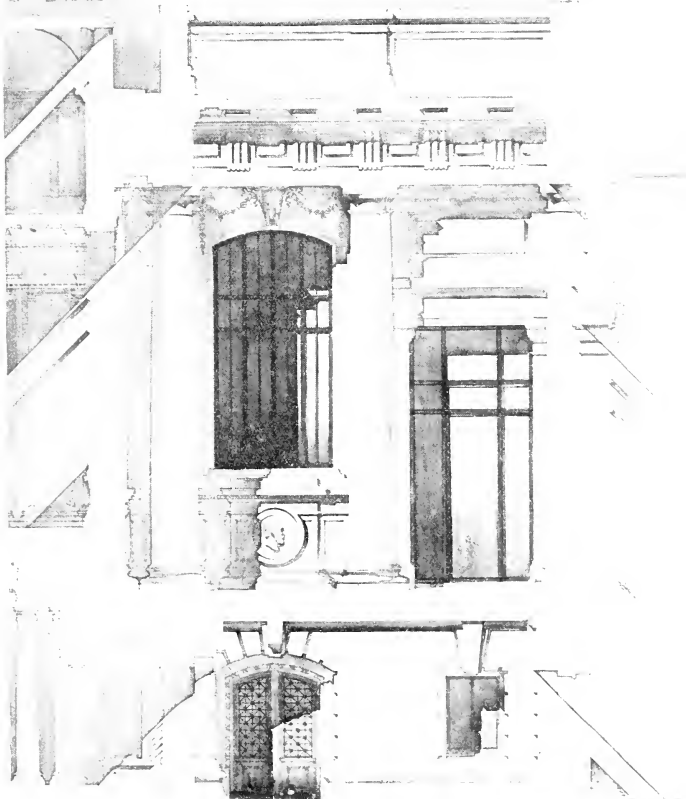
At a meeting of colleagues to the memorial fund to the late Bishop of Hull, Dr. Bunney, at St. Stephen's, on Wednesday, it was decided that the fund, amounting to £460, should be used for the purchase of the new building of the church, the church of St. Stephen's, which is known as the Blue Memorial Church. The new church will seat 800 people and cost £40,000.



ROYAL INSTITUTE OF BRITISH ARCHITECTS. SOANE MEDALLION COMPETITION, 1912.
 CERTIFICATE OF HON. MENTION AND £50. PRIZE DESIGN BY MR. WILLIAM FRANKLIN ("Circle City").

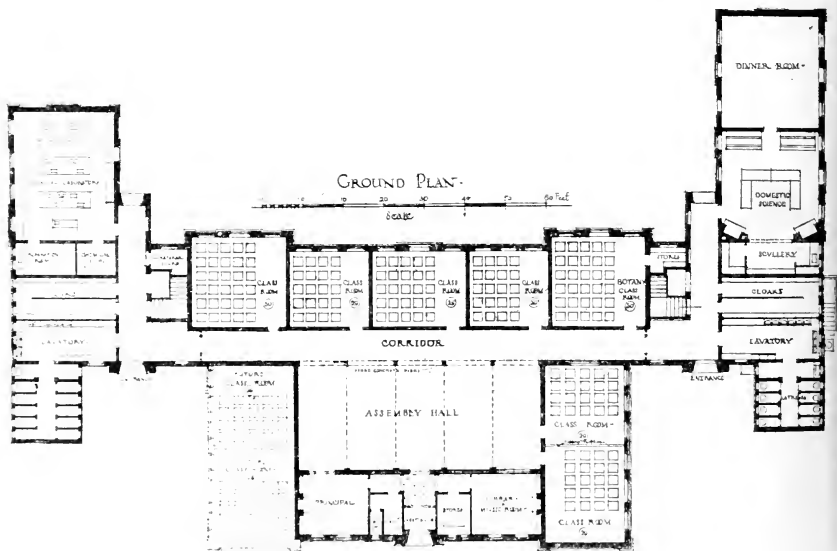
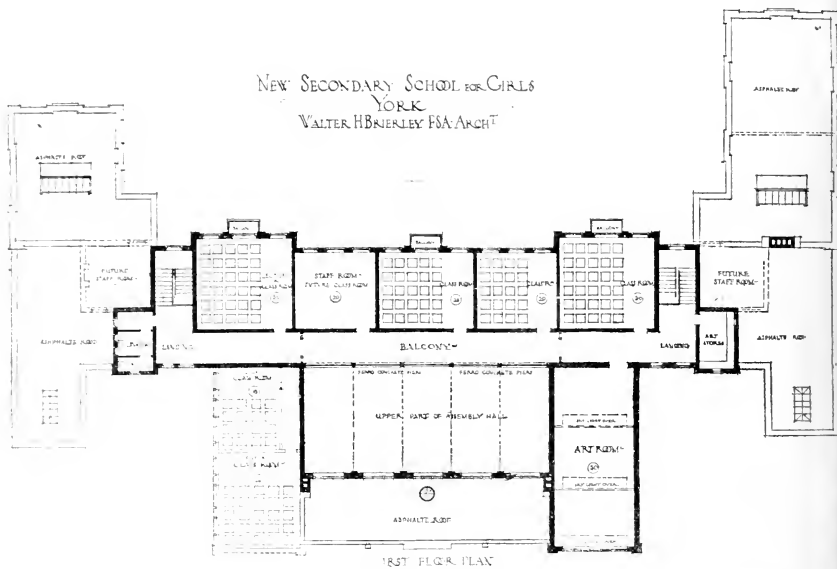


EXTERIOR



ROYAL INSTITUTE OF BRITISH ARCHITECTS. SOANE MEDALLION COMPETITION, 1912.
CERTIFICATE OF HON. MENTION AND £50. PRIZE DESIGN by MR. WILLIAM FRISKIN. "Circle City."

NEW SECONDARY SCHOOL FOR GIRLS
YORK
WALTER H. BURNLEY F.S.A. ARCHT



Building Intelligence.

AUCKLAND, N.Z.—The new town hall for Auckland, New Zealand, was opened on December 14 by Lord Islington, the Governor of the Dominion. The building, which is Free Classic in style, occupies a triangular site, with frontages to Grey-street and Queen-street. The material used for the façades is Oamaru limestone with a base in Melbourne limestone. For the main gable and Grey-street fronts a columnar method of design has been adopted, terminating at the apex formed by the junction of the two streets in a segmental colonnade, surmounted by a tower 18ft. square and 130ft. high, in which is to be fixed a clock with four dials of 8ft. 6in. diameter. In front of this colonnade is a terrace inclosed by a stone balustrade, with provision for a statue at the extreme angle. The foundations required special treatment on account of the depth at which rock was found. Concrete piers have been carried down at intervals to the rock, and the spaces between spanned by concrete beams carrying the walls, the beams being reinforced with Kahn steel bars. The building is divided into two portions, the first being a four-story building containing the municipal offices, and the other containing the Great Hall, Lesser Hall, and Supper Room. On the ground floor is the council chamber, a room semicircular in plan, 47ft. by 32ft., and panelled in kauri, with plaster walls and ceilings and lead glazed windows. On the first floor is the great hall, which has an average length of 166ft. by a width of 75ft., by 75ft. At one end is an organ, the largest in New Zealand, built by Messrs. Norman and Beard, of London and Norwich, and in front thereof is placed a chorus gallery and orchestral platform, accommodating 350 performers. The ground floor seats 1,660 persons, exclusive of the chorus gallery and platform, while a further 740 can be accommodated in the balcony, situated on two sides and at the end of the great hall. The architects are Messrs. J. J. and E. J. Clark, of Melbourne, whose design was selected in competition, and the contractors are Messrs. Ferguson and Malcolm. The cost has been £126,000.

SOUTH KENSINGTON.—The building of an addition to the Imperial College of Science and Technology—namely, the Botanical Institute in Prince Consort-road—has been already begun. Sir Aston Webb, C.B., M.V.O., R.A., has designed a four-story building, about 120ft. long by about 50ft. deep, which will be ready for occupation by the opening of the next session. The two lower floors will be devoted to the general botanical work of the college, now carried on at the Royal College of Science in Exhibition-road. The two upper floors have been designed for the new department of Plant Physiology and Pathology. A feature of the top floor will be the greenhouse-laboratory, 25ft. by 20ft., which will have a cement floor and glass roof, so as to combine the advantages of a greenhouse and a laboratory. On the same floor will be a physiological laboratory and a professor's room, two research laboratories, and five other research rooms. On the floor below will be a bio-chemical laboratory, pathological laboratory, a bacteriological laboratory, a constant temperature room, and two more research rooms. The building will cost about £14,000.

The price of Mr. Briggs's book on "Pompeian Decorations," reviewed by us last week, is 25s. net, not 15s., as it was given by an error of the printer.

At the meeting of the Clydebank Town Council on Monday night, a report was submitted by the town-planning committee showing the district within which a scheme might take effect. The district includes Old Kilpatrick on the west to Blythsill Hospital, on the east, together with Duntocher, Hardgate, Fairlie, Garscadden, and Drumchapel on the north. A plan of the district is to be prepared, showing whether or not matters how a portion of it might be linked up by a tramway system.

COMPETITIONS.

BUCHAREST.—In the competition limited to Roumanian architects for a palace for the Senate to be built at Bucharest, the first prize has been awarded to the design under motto "Argus," by M. Ernest Dancu, and the second to that submitted under the title, "Nihil sine Deo," by M. Demetra Miniroiu. The work was entrusted conjointly to the two nominated architects, both of whom are former students of l'Ecole des Beaux Arts de Paris.

LURGAN.—The Lurgan Urban Council have appointed Mr. James Hunter, D.E., Lisburn, their architect for the erection of houses under their improvement scheme, his plans being adjudged by the assessor first in order of merit of those submitted. The two next in merit were those by Mr. McLean, architect, Scottish Temperance Buildings, Belfast, and Mr. Fennell, F.R.I.B.A., Scottish Provident Buildings, Belfast. Mr. Hunter will carry out all the necessary architectural work, the sum of £2 per house, provided a clerk of works is employed. Fifty-eight houses are to be built, the twenty-five on the north side of Wellington-street being estimated to cost £125 each, and to let at 3s. 3d. per week, and the thirty-three on the south side of the same thoroughfare, to cost £100 each, and letting at 2s. 9d.

RHOS CHAIR EISTEDFOD, WHIT-MONDAY, 1912.—A first prize of £10, and a second prize of £5, is offered in competition for the best design of one pair of workmen's cottages. The adjudicator will be Mr. Rowland Levin, F.R.I.B.A., whose decision must be accepted as final and unassailable. The designs must be delivered by post not later than Wednesday, May 1, 1912, addressed to Mr. G. Melroin Griffiths, Art Secretary, Rhos Ruabon.

THE SOCIETY OF ENGINEERS.—The council of the Society of Engineers (Incorporated) may award in 1912 two premiums of books or instruments to the value of £8 8s. and £4 4s., as first and second prizes respectively, for approved essays on the subject of "How to Improve the Status of Engineers and Engineering, with special reference to Consulting Engineers." The council reserve the right to withhold either or both of the premiums if the essays are not of the required standard of merit. The competition is open to all, but application for detailed particulars should be made to the secretary before entering. The last date for receiving essays is Friday, May 31, 1912.

THE USHER HALL: THE DECORATIONS AND ORGAN.—At a meeting of the Usher Hall Committee of Edinburgh Town Council, held on Saturday last, there was considered the outside statuary of the building, and the organ for the hall. The outside statuary was decided upon. From models submitted, that for the central doorway showed a design of the city arms, with emblematic figures representing music as supporters. The two subsidiary doors at the front of the building are to be decorated with allegorical musical groups, and the doors at Glasgow-street, which group representing music and composition. The sculptors selected were: For Grindlay-street, H. Gamley, A.R.S.A.; for the central doorway, W. Birnie Rhind, R.S.A.; and the other front doors, Mr. M. Lure, of Kensington. With regard to the organ, the organist of St. Mary's Cathedral was present to advise. It was agreed to remit to him to prepare plans and specifications, limiting the competition to six selected firms. Nothing definite was fixed as to the price.

WEST HARTLEPOOL.—The limited competition for the proposed new church of St. Luke, West Hartlepool, in which Mr. W. D. Caroe acted as assessor, has resulted in favour of the design submitted by Messrs. Lofting and Cooper, of 44, Bedford-row, W.C.

WINNIPEG.—Mr. Leonard Stokes, P.R.I.B.A., has been appointed by the Government of Manitoba to act as assessor in the competition for the new Government Buildings in Winnipeg. It is expected that he will leave England about the middle of

next month, and will be in Winnipeg about two weeks. The last date for receiving plans under the terms of the competition is March 31, and it is stated in the tender papers that although the competition is an open one, owing to the small amount allotted for the preparation of designs, it will be practically restricted to practitioners in the Dominion. The appropriation for the building is £2,000,000, the scheme of heating, lighting, plumbing, and hot-water. Provision is required for 133 rooms with a total floor space of over 220,000 sq. ft. Out of the plans submitted, five will be selected by Mr. Stokes. The authors of these plans will receive £2,000 each. Mr. Stokes will pay a second visit to Winnipeg in the autumn, and will select from the five completed designs one for execution. The architect whose plans are finally adopted will be paid 4 per cent. only upon the estimated cost of the work as represented in the accepted tender.

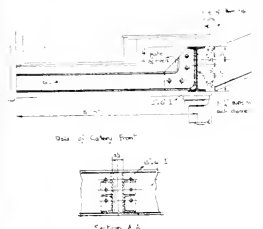
PROFESSIONAL AND TRADE SOCIETIES.

CLERKS OF WORKS' ASSOCIATION DINNER.—The twenty-ninth annual dinner of the Incorporated Clerks of Works' Association was held at the King's Hall, Holborn Restaurant, on Saturday evening. The chair was occupied by Mr. Gerald C. Horsley, F.R.I.B.A., President of the Architectural Association, and there was a large number of members and guests. The local toasts having been given from the chair, Mr. R. H. Henley, vice-president, proposed, "The Architects and Surveyors," which was acknowledged by Mr. Edward Warren, F.S.A., F.R.I.B.A., who traced the historic evolution of the clerk of works during the past two centuries, and urged the paramount importance of mutual confidence and respect between architects and clerks of works. The toast of "The Builders," brought forward by Mr. John Williams, past-president, was acknowledged by Mr. Henry T. Holloway, jun. The toast of the evening, "Prosperity to the Incorporated Clerks of Works Association," was proposed by the chairman. All present who were members of the association were, Mr. Horsley observed, fully aware of the good it was doing, had done, and would hereafter do. He considered it the bounden duty of every clerk of works who was eligible for membership to enrol himself in its ranks, and if he was not eligible, he should take immediate measures to make himself so. He would thereby greatly benefit not only himself but also all the other members of his trade. All present, he felt sure, regarded a clerk of works as a very exceptional person, but there was one side of him which, between themselves, was very like other people, and that was that if a clerk of works got into the way of living alone and working alone, and of not meeting his colleagues and fellow-craftsmen, he was apt to get into a groove, and, sooner or later, he would find this groove an uncomfortably tight place, while he himself was certain to be narrowed in mind and in outlook. For that reason, he urged every clerk of works' duty to others. Besides looking after the material interests of its members, the association, by the guarantee it offered of their capability and integrity, became an important factor in the building trade, and consequently in architecture. In his personal experience he had known architects who had said: "I can't be bothered with a clerk of works—my time is too precious, and I don't want it." Well, all architects desired a good foreman on each of their jobs, and such was the excellence of the British workman, they generally got him. But his experience went to show that a clerk of works who really carried out his duties was about the most useful man on a contract. The fact was, they were all the better for being looked after in a large way, and the work of supervision the clerk of works often saved valuable time—and time was money. In responding, Mr. C. W. Denny, the president of the association, explained its objects, emphatically stating that it was not a trades union, nor could it employ any portion of its funds to support a union. Its sole aim was to bind members together, to guarantee the

able twisting moment on the girder, its total value depending on the length, and the resistance on the weight transmitted by the girders beams and the holding-down bolts.—Frederick Dyer, P.A.S.I., 76, Lindey-street, York.

[15085].—THE VEE BALCONY.—The method shown in sketch accompanying query of connecting cantilever channels to 1-in. post would not give sufficient rigidity for a structure of this class. The accompanying sketch shows a good method of connection. The ends of the channels are forged and bolted direct to the web of the 1-in. post, the

at abutments. If both ends were fixed on others, the truss would slide on its abutment. It would be vertical, the abutment at level of ceiling, the reactions to sliding and vertical loading combined. As both ends are fixed, each abutment takes its share of the loading, in addition to the vertical loads. The diagrams show a simple and correct method. Draw the frame diagonally to scale, plotting the calculated loads, pressures, and lifting the truss.



forced bend being strengthened by a 1-in. plate riveted to web of channel. The calculations for numbers of bolts to 1-in. post are as follows:—Load on pair of channels = 4,400 lb., load on each channel = 2,200 lb., say, 1 ton. The channel is a lever with fulcrum at bottom flange of 1-in. post. Then, assuming the whole of the load as acting at the centre of the load arm, the moment of the load

$$= 1 \text{ ton} \times 30 \text{ in.} = 30 \text{ in.-tons}$$

Assuming that the pull in the short arm of the lever is taken by the two top bolts with a centre of gravity at 10 in. from fulcrum, then moment of pull

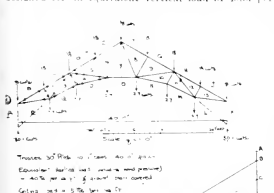
$$= P \times 10 \text{ in.}$$

where P = pull. Equating (1) to (2)

$$10P = 30 \text{ in.}, \therefore P = 3 \text{ tons.}$$

Two 3-in.-diameter bolts are, therefore, ample; but three would be used, as shown, for the sake of stiffness. It would be quite good practice to use bolts for connection to the 1-in. post in order to facilitate erection.—H. J. Nowlan, 7, Gordon-terrace, Torpoint, R.S.O., Cornwall.

[15086].—STRESS DIAGRAM.—The simplest stress diagram for a roof of this type and span is here given. Roof trusses up to 40 ft. span are usually designed for an equivalent vertical load of 30 lb. per



square foot of ground plan covered, such load including the wind-pressure. This is given in some textbooks, such as "Theory and Design of Structures," by Ewart S. Andrews, but is ignored by most authors, is, of course, they are more concerned with principles which are applicable to all spans of trusses. The stress diagram is self-explanatory. Member 3-4 has been introduced in order to reduce the eccentricity in the main tie due to curvature. It is pointed out that it is considered good design to arrange the long members in a truss as ties, and the short members as struts; and this truss would be more effective if member 4-5 were placed in position as shown dotted.—H. J. Nowlan, 7, Gordon-terrace, Torpoint, R.S.O., Cornwall.

[15087].—STRESS DIAGRAM.—It is not correct to assume a vertical load in line of wind-pressure, though it is sometimes done to simplify diagrams and to get approximate stresses. There is always a force tending to slide the truss horizontally on its abutments, which must be resisted by inclined reactions

Vertical load from truss:—Snow 50 lb. per ft. super. of roof surface; purlin 10 lb. ditto, truss 30 lb. ditto, slates 10 lb. ditto, rafters 30 lb. ditto, inf. raking 30 lb. ditto; total 50 lb. per foot super. Load on joints B.C. C.D., D.E., E.F., F.G., G.H., H.I. = 5 ft. 6 in. x 10 ft. x 20 lb. = 15,000 lb. = 15 cwt. nearly. 7 cwt. on joints A.B. and J.K. these joints having only half roof area of the other joints. Wind pressure normal to roof. Assuming a maximum wind pressure of 50 lb. per foot horizontal, this gives a normal at 90° to horizontal of 30 lb. per foot super. Load on joints B.C., C.D. and D.E. = 5 ft. 6 in. x 10 ft. x 30 lb. = 15,000 lb. = 15 cwt. nearly. 7 cwt. on joints B and E; these joints having only half roof area of pressure to carry. Vertical load from ceiling: Ceiling joists = 30 lb. per foot super, lath and plaster = 12 lb. ditto; total = 150 lb. per foot super. Load on joints P.O. and N.M. = 100 ft. x 150 lb. = 15,000 lb. = 15 cwt. nearly. Load on joints O.N. and N.M. = 5 ft. 6 in. x 150 lb. = 1,275 lb. = 12 cwt. nearly.

Plot down wind-pressures, roof loads, and ceiling loads as shown, with their respective reactions. The reactions of roof and ceiling loads at each abutment is half of the total load, because the loads are symmetrically placed on truss. The reaction for wind is found as shown. Draw on frame diagram lines through abutment parallel to wind-pressure, giving direction of reactions due to wind only. Draw horizontal line through apex of truss, and from this point the resultant wind-pressure, X.Y., passing through a point midway between joints P.O. and E.F. (E.F. in side of roof). Through Y draw a horizontal line to cut the other reaction. Join points at junction of reactions with the horizontal lines. Where this line cuts X.Y. in Z, as shown, the reactions of wind at the abutments, which should be plotted on stress diagram as shown. These separate loads and reactions must now be compounded. Add reactions at each abutment, due to roof and ceiling loads, together, as shown, and compound this reaction with reaction for wind, by parallelogram of forces, giving total reactions A.P. and P.I. in stress diagram. The ceiling loads must now be put in their proper place between reactions. This is done as before, by drawing K.L. parallel to P.P. the line L.M.N.O.P. being equal and parallel to l.m.n.o.p. The roof loads, a.b.c.d.e.f.g.h.i.k., and the wind-pressures, a.b.c.d.e.f., are compounded by parallelogram of forces, as shown in line A.P.C.D.E.F.G.H.I.K. This gives a combined polygon of loads, pressures, and reactions, representing forces in truss taken from abutment A, in clockwise rotation to abutment I. The stress diagram may now be proceeded with in usual manner, commencing at abutment A. The curve members in tie are treated in diagrams as being straight from joint to joint. They have a bending moment equal to the stress, as measured from diagram, multiplied by the height of their arc of curvature, as shown in figure. They also act as a beam, carrying a distributed load from ceiling of 150 lb. per foot run.—A. Wainisley, 405, Church-road, Smithills, Bolton.

LEGAL INTELLIGENCE.

THE CHAIRMAN OF THE L.C.C. FINED FOR BREACH OF BY-LAWS.—Mr. Edward White, Chairman of the London County Council, at Upper Berkeley-street, was summoned before Mr. Phipps, at the Marylebone Police Court, on Friday, at the instance of the Marylebone Borough Council, for within the last two months contravening its bye-law, set out in

iron instead of drawn lead, with proper wired plumbers' joints, as required by the London County Council drainage by-laws, and also for carrying out the work without having previously deposited "plans, sections, and particulars" of it with the borough council. Mr. Freke Palmer, solicitor, appeared for the Marylebone Borough Council. Mr. White conducted his own case from the solicitors' box. Mr. Freke Palmer remarked that at the defendant's house, without notice having been given, a manhole and two branch drains had been constructed, and a soil-pipe had been erected which was in contravention of the bye-law, which was in contravention of lead. The bye-laws permitted an outside soil-pipe to be of iron or lead, but required that an inside soil-pipe should be of lead, and lead only. Mr. White, when written to on the subject, submitted plans, but they were returned, as they did not accurately represent the work, and were not in accordance with the London County Council bye-laws. He then wrote: "I have not the slightest intention of altering the iron soil-pipe, so shall have to be content to let them remain without your approval." In view of that letter, the borough council had no alternative but to take these proceedings.—Dr. Porter, medical officer of health, gave evidence.—Mr. White said it was rather singular that he should have been summoned, seeing that he had been appointed by statute to preside over the committee that dealt with the appeals under the bye-laws. The house in question was a four-story building which he was preparing for his own occupation. He contended that an iron soil-pipe was far better from a sanitary point of view than lead, and, since a very small portion of the pipe in question was inside the house, he claimed that it could fairly be described as a soil-pipe outside the house, and could therefore be of iron. The present proceedings were entirely irregular, as the council had failed to make an order against him to do the work. Owing to the illness of his son, the plans were not submitted at the proper time; but the borough council had forfeited their right to proceed against him for that by their subsequent conduct.—Mr. Phipps found that the council were right in taking proceedings against Mr. White in respect of the plans, and fined him a nominal penalty of 10s., with 2s. costs. But the real point in the case, he said, was the soil-pipe. The pipe was half inside the house

ment, and the particular line was proposed. The Council of Appeal, rightly of course, divided into three, and defined building lines in three different parts of the street. Something was decided by the Tribunal which neither of the parties could show. The Council added later that the rule were granted, it would have to be saved on the appellants and notice given to the parties interested. There were appellants as to the middle part, and as to the west end, the Metropolitan Railway Company would be the respondents, and the London County Council would be made appellants. Ultimately, after further discussion, the rule was granted.

Our Office Table.

LONDON ROAD BUILDING LINE. HIGH COURT APPLICATION. On Friday, Feb. 9, before a Divisional Court of the King's Bench Division, composed of Judges Hamilton and Lush, Mr. Dalrymple applied in part to the Council of the London County Council, for a rule nisi for the Tribunal of Appeal, to show cause why they should not state a case for the opinion of the Court. Counsel said that under the Act the determination of the general line of buildings in any particular street, or part of the street, was in the first instance carried out by the surveyor, and the superintending architect; but against that certificate the Act gave an appeal, which was an appeal both on facts and law, to what was known as the Tribunal of Appeal. From that Tribunal there was an appeal by way of a case stated to the High Court, and that is the present application, but regard was paid to a difficulty that had arisen in respect to Easton-road. There was the certificate of an architect as to the general line of the buildings in a certain part of Easton-road, and there was an appeal stated to the Tribunal of Appeal, in connection with which many people appeared. There were originally five appellants, and there were interested parties who were also called. The Tribunal decided the case in a certain way, and there was an application for a case or cases stated to the High Court, and the Tribunal took the view that there were five different proceedings before them, in each of which they ought to give a separate determination and state separate cases. The question for their Lordships now was whether there ought to be one or three cases. There were now three appellants only, said counsel, Mr. Justice Hamilton: Do you say that? Tribunal proposes to state three cases—Counsel: Yes. We ask that there should be one case stated to which all the parties who appeared before the Tribunal of Appeal should be named. Mr. Justice Hamilton: If you state three cases raising the same point, they would all be in the paper together, and judgment would not be given until they had been argued, and the three respondents would be heard separately. Mr. Dalrymple said that the London County Council would be the respondents in every case, but with three cases it would amount to a very considerable quantity of litigation. He agreed with what Mr. Justice Hamilton had said with regard to each party having the right to a separate case; but, as his Lordship was probably aware, the House of Lords had decided that the determination of the position of the building-line was the position of the building-line as between the superintending architect and any particular party who had a house along the line of building, so that it might be left open to any party having a different house to get another determination. Mr. Justice Hamilton: Is there any divergence in the arguments of these different appellants? Counsel replied that he believed that, with one slight exception, the contentions were practically the same. Mr. Dalrymple quoted legal sections dealing with the determination of the general line of buildings in streets and the provisions concerning the stating of a case for the opinion of the High Court on questions of law, and he said he submitted that a local authority, or anybody who had the advantage might go before the Tribunal of Appeal, and any party interested could also go before them and be heard. The Tribunal of Appeal had to give the opinion for the opinion of the High Court in any question that is involved in any appeal submitted to them. Mr. Justice Hamilton said he saw the Tribunal of Appeal had given an elaborate statement not only in its refusal to comply with counsel's wishes, but it was stated the points would be difficult to co-ordinate the points of law, and it was combined cases, and it might create hardship, and it was so simple to state in three cases, and they thought that would be more conducive to justice being done. Counsel in further reply to the Council gave notice to amend the London County Council were the respondents, and Mr. Justice Lush. Then the Tribunal of Appeal might act by their decision satisfy the appellants, or the respondents? Counsel said in this case the Tribunal of Appeal "broke down" with a judgment which was not agreed by the parties concerned. The superintending architect can defend the general line of buildings along a certain part of the Easton-road, and the whole discussion was with reference to that length in

which the particular line was proposed. The Council of Appeal, rightly of course, divided into three, and defined building lines in three different parts of the street. Something was decided by the Tribunal which neither of the parties could show. The Council added later that the rule were granted, it would have to be saved on the appellants and notice given to the parties interested. There were appellants as to the middle part, and as to the west end, the Metropolitan Railway Company would be the respondents, and the London County Council would be made appellants. Ultimately, after further discussion, the rule was granted.

Representatives from the London County Council, the Middlesex County Council, Kensington, Fulham, Hammersmith, Chiswick, Brentford, Twickenham, and Isleworth were present at an important conference on Wednesday, at the offices of the Road Board, to consider the proposed new approach-road to London on its western side. The proposed new road would be 80 ft. wide, and would extend from the West Cromwell road to Hounslow, via Hammersmith and Brentford. The estimated cost would be approximately £1,000,000 within London and £750,000 in Middlesex, and an Act of Parliament would probably be necessary. Regarding the cost, Sir George Gibb, the chairman, stated that the Road Board is prepared to contribute in the aggregate £875,000. It was decided that the local authorities interested should be asked to appoint delegates to attend a further conference to discuss the details of the scheme.

The broad gravel path in the Green Park between the ornamental gateway facing Buckingham Palace to a spot almost immediately opposite the Naval and Military Club in Piccadilly is being remodelled. Instead of a narrow path, the new path will be a wide way, between which there will be turf and trees. The work has been undertaken in order to provide a better approach to the King Edward Memorial statue which is to be placed in the avenue, at the culminating point of the slope, not far from the railings in Piccadilly. Mr. Bertram MacKenzie, A.R.A., the sculptor, is, in conjunction with Mr. Edward Lutyens, F.R.I.B.A., making a model of the proposed statue of the King. This will be ready for the inspection of the Mansion House Committee towards the end of this month.

The President of the Board of Agriculture and Fisheries has appointed a Departmental Committee: (1) to inquire and report as to the nature and character of the buildings which should be provided for use in connection with small agricultural holdings in England and Wales, regard being had: (a) to the requirements and requirements of the occupiers; (b) to considerations of economy, and also the possibility of the reduction of cost by the use of materials and methods of construction different from those ordinarily employed at present; (c) to the special agricultural and building conditions of the different parts of the country; and (d) to the various requirements of the Public Health Acts and any other regulations made thereunder. (2) To submit a series of plans and specifications likely to be of assistance to local authorities and landowners for the purpose. Mr. Christopher Turner is the chairman of the committee, and among the other members are Mr. A. Ainsworth Hunt, M.S.A., of Bury St. Edmunds, and Mr. H. H. Law, M.Inst.C.E., deputy chief engineering inspector of the Local Government Board, and Mr. Raymond Cunwin, F.R.I.B.A., Mr. C. W. Sabin, of the Board of Agriculture and Fisheries, will act as secretary.

A useful half-crown treatise by Mr. C. E. Hawden, London: Longmans, Green, and Co. on "The Precise and Therefore Economic Calculation of Pipe, Drain, and Sewer Dimensions," will be found of service by engineers and others concerned in water-supply and drainage. Some good designs are illustrated, from which, with the hydraulic

tables, based on a careful comparison of all available coefficients, anyone can, adopting any desired coefficient, at once ascertain the safe minimum dimensions, and, therefore, the lowest reliable cost of the pipes, drains, and sewers required.

A preliminary statement of the general results of the thirteenth United States census relative to establishments engaged in the manufacture of brick and tile has been issued by the Department of Commerce and Labour, Washington. It covers building, face and ornamental brick, vitrified brick, drain tile and any other brickyard product. The general summary shows increases in all the items at the census of 1910, as compared with that of 1901, except in number of establishments, which decreased from 4,634 to 4,125, or 9 per cent. The capital invested as reported in 1909 showed an increase of 46 per cent. over 1901. The average capital per establishment was approximately \$1,000,000, in 1909 and \$2,000,000 in 1901. The value of products had increased by 30 per cent., but the cost of materials used showed an increase of 45 per cent. The salaries and wages amounted to \$2,578,000, in 1909, and \$2,176,000, in 1901, an increase of 32 per cent. The number of salaried officials and clerks was 3,551 in 1909 and 3,690 in 1901, an increase of 3.4 per cent.; their salaries rose by 54 per cent. The average number of wage earners employed during the year was 76,528 in 1909, and 68,021 in 1901, an increase of 16 per cent.; their wages had improved in the five years by 30 per cent.

MEETINGS FOR THE ENSUING WEEK.

- FRIDAY (TO-DAY).** Edinburgh Architectural Association. Associates' Annual Dinner at Ferguson's at 7.30 p.m. Dundee, 129, Princes Street. 7.30 p.m.
- Glasgow Architectural Craftsmen's Society. "The Manufacture of Building Contracts," by James Muir, 8 p.m.
- Institution of Civil Engineers. Students' Lecture, Vernon-Harcourt Lecture No. 1 on "Works for the Prevention of Coast-Erosion," by A. T. Douglas, 8 p.m.
- SATURDAY (TO-MORROW).** Architectural Association. Visit to the British Museum Extension (J. J. Burnett, F.R.I.B.A., Architect, 6 p.m.)
- Junior Institution of Engineers. Annual Dinner, Hotel Cecil, 6.30 p.m.
- MONDAY.** Royal Institute of British Architects. Collegiate Architecture, by Edward Warren, F.R.I.B.A., 8 p.m.
- Liverpool Architectural Society. "A Holiday in Piedmont," by T. E. Eccles, F.R.I.B.A., 6 p.m.
- TUESDAY.** Architectural Association of Ireland. Annual Dinner, Metropole Hotel, Dublin, 7 p.m.
- WEDNESDAY.** Edinburgh Architectural Association. "Plasterwork," by George P. Bankart, of London, 8 p.m.
- THURSDAY.** London Master Builders' Association. Annual Dinner.
- FRIDAY (FEB. 23).** Birmingham Architectural Association. "A Talk about the Birmingham C.E.S. Extension," by Ascher and Newman.
- Lancaster Society of Architects. Reminiscences, by E. L. Goddard, M.A., F.R.I.B.A., 8 p.m.
- Institution of Civil Engineers. "Works for the Prevention of Coast Erosion," by W. H. Douglas, M.A., C.E., Vernon Harcourt Lecture No. 2, 8 p.m.
- SATURDAY (FEB. 24).** Institution of Municipal Engineers. Superintending Architects of Towns, by A. Winter Gray, J. Southampton-road, W.C., 6 p.m.

The Harrison Hughes engineering laboratories at the University of Liverpool are practically completed. The new laboratories have been built at a cost of about £40,000, borne by Messrs. Fenwick and Heath Harrison and Mr. J. W. Hughes.

It is announced in "Architectural Association Notes" that the fund for the widow and family of the late Mr. David G. Driver, secretary of the Association, continues to grow in a manner worthy of the A.A., and now stands at something over £600.

The Harrod District Council have elected Mr. Harold Pless to the dual position of surveyor and inspector of nuisances, at a salary of £150. Mr. Joseph Stanley, whom he succeeds as surveyor, had held the post for thirty years, and is an octogenarian.

GLAZED BRICKS.*

HARD GLAZES. (PER 1,000.)

White, Ivory, and Best. Seconds. Buff and Others. Second Colours.	13 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THE BUILDING NEWS

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Effingham House,

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BUILDERS' OFFICIALS IN THE MIDDLE AGES.

The following list probably includes all officials commonly employed by Medieval builders:—Clerks of works, masters of works, setters out of work, overseers, surveyors, deputy-surveyors, paymasters, purveyors, and builders' clerks. To some extent, as we shall see, the work of any one of the above-named officials was at times carried out by any other of them. In more than one instance we shall see that one man executed the functions of no less than three officials.

THE CLERK OF WORKS.

In modern times this official is known as the Clerk of Works, but in Medieval days he was spoken of as the Clerk of the Works (in the Record Office MS. 464-20 "Clarke of the Workes"). It is probable that many Medieval accounts recording the expenditure in wages and the cost of materials purchased were set down by the builders' clerk acting directly under the authority of the clerk of works. We may suppose the actual accounts as they remain to-day to have been made up from entries set down at the time. Indeed, we sometimes see in these accounts a statement that the expenditure recorded may be seen in greater detail in other books. Of Medieval building accounts remaining, set down under the authority of the Clerk of Works, perhaps one of the most interesting is that in the Record Office labelled Exch. Acc. 504-2. In this MS. we see that the "clerk and surveyour of the sayde workes" was paid at the rate of 4s. a day to cover his "ordinary rydynges costes from place to place to know his grace's pleasure not only for surveying of the foresaide castells and mannours for buyldynges and repayryng of the same, but also for rydyng dyvers tymes for making of payments for the foresaide buyldynges and reperacions done." For his "ordinary boote (boat) hiren" he had 20d. a day, and "for his ordinary fee belongynge to the foresaide office as Clerke and Surveyor of the sayde workes at iiii. the day, over and besydes vid. the day more to hym allowyd for a Clerke to make his bookes." In MS. 464-20 we see that Laurence Norton was Clarke of the Workes in 1546. He was paid 8s. a day or "making of purveyours of naylles, tylle, yllpeyns, lime," etc. for procuring workmen, for overseeing the workmen, and for making up the books. Norton was paid his last wage on October 3, 1546, the new clerk commencing his duties as "clarke of the workes" on Monday, the 5th, and receiving his first wage on Saturday, the 10th. In MS. 459-22, a clerk of works is paid, but 1. a day, the page in which such payment entered recording also the payment to

labourers of 5d. a day. The following order to a Clerk of Works in the year 1517 is to be seen in the Record Office MS. 474-9. Such orders, so common at one time, are now rarely met with.

"We wol and commaunde you, that ye with diligence upon the sight herof, ye deliver or cause to be delivered unto our trusty servant s^r John Nevell, Knight, towards the buylding of a house at Myle ende, one hundred thousand of breke and twenty quarters of lime, being of our owne store and provision and to be delivered at the said Myle ende at our owne propre costes and charges. And this our lettres shal be your sufficient warrant and discharge in that behalf. Ye even vnder our signet at our manour of Greenwich, the xiiiij. day of Julye, The xij. yer of our Reigne.

"To our trusty and wel beloved servant,
"Henry Smyth, Clerk of our workes."

MASTERS OF WORKS AND OVERSEERS.

Masters of Works are rarely mentioned, but in the time of Henry VIII. a carpenter of the name of John Kerver eventually rose to be a "Master of the Kings Workes" in the district of North Wales. In one of the many records of building operations carried out under the authority of John Kerver, we find the entry of a payment to himself "for overseeing and setting a work the seide workemen" (MS. 488-30). Here we find the same man both Master of the Works and Overseer. In an account of certain building operations mention is made of wages paid to "overseers" (MS. 488-15). In MS. 504-2 a Laurence Bradshaw receives 16d. a day, he is called "The Setter forth of Workes and Overseer of Workmen." In another place he is described as "The Setter oute of Workes." Subsequently Bradshaw's wages were reduced to 12d. a day, excepting on those days when he was out "rydinge," on which occasions he was paid 20d. per day. In MS. 464-20 Thomas Jauney is paid 6d. a day for "overseing" that the workmen "do they're duty," and for making up the books. In this case we see the same man doing the work of an overseer, and also that of a builder's clerk. It is also to be noted that the side heading to this entry is "clarke of the Workes." He executed the functions of three officials.

THE PURVEYOR.

The purveyor was the official whose business it was to travel about to secure the various materials needed by the builder. In MS. 504-2 the duties of the Purveyor are set down very clearly:—"Purveyour. Provyinge as well carriages for tymber, borde, lathe, quarters, and other necessaries made out of Suffolk as also for carriage here nere home of tymber and planks bought." In MS. 479-II we read of expenses entailed by "the purveyours rydyng aboute sondry provyions for the said workes." The pur-

vveyor was not a highly-paid official; he was probably paid about 8d. a day in addition to his expenses for horse hire. Sometimes he is placed in the same group as the clerks: the following entry, however, draws a distinction between the purveyor and the clerks: "ii purveyors, ii clerkes, and sondry labourers dayly retaynyd." In MS. 504-2 John Downe is "purveyour" at 6d. a day.

THE SURVEYOR, DEPUTY-SURVEYOR, AND PAYMASTER.

In MS. 488-27 we read of the "deputy surveyour," an official very rarely mentioned in builders' accounts. In MS. 489-17 we see that Robert Buryhill was surveyor, paymaster, and purveyor; he rode "from place to place for provyions." Official paymasters are rarely mentioned, the payment of the workmen probably generally resting with the clerk of works. In MS. 645-29, Jeffery Gates is "paymaster to the workemen." Accounts are set down under his authority in MS. 544-12. Laurence Bradshaw was a paymaster, an overseer, and one who "set" the men to work. The sum of 5s. 4d. is entered in MS. 504-2 as having been paid him "for Rydinge from Westm' (minster) to Dunstable to paye worke men there by the space of iiii. dayes." Robert Pilling rode with him "for the savegarde of the same monye," receiving 4s. for so doing. In MS. 474-3 John Bayle is purveyor and overseer, too, at 5d. a day. In MS. 465-20 Hector Hasshely is paymaster and surveyor at 12d. a day. In MS. 489-16 the surveyor sees to the workmen and acts as purveyor, receiving a stipend of £10 a year, for which sum he was expected to provide the horse, which was practically part of the equipment of a purveyor. An instance of a surveyor called on to furnish a report and estimate for the repair of a building is to be seen in MS. 458-9.

THE BUILDER'S CLERK.

The ordinary builder's clerk was paid 6d. to 8d. a day. (MS. 477-12.) In MS. 501-2 we read:—"The Clerk. The Clerke keeper of the cheeke booke and chensere of the workmen." Here a clerk acts as overseer. The check book was possibly a volume in which the materials were entered as they were delivered on the site.

ESTIMATING FOR REINFORCED CONCRETE WORK.—III.

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STRENGTH OF MATERIALS FOR AGGREGATES.

The strength of concrete depends not only on the quality of the cement, and the proportions in which the concrete materials are mixed, but also on the compressive

THE ART OF THE PLASTERER.*

By GEO. P. BANKHART.

Mr. Bankhart said that he should confine his remarks to an analysis of principles and qualities essential in good plaster decoration. The chief point he wanted to drive home was that in whatsoever age the "Art of the Plasterer" was practised, the greatest result was attained by the proper use and development of the particular kind of plaster employed. The immense variety that took place in the modelling and handling of the decorative work was due almost entirely to the difference in the nature of the plaster that was used. He would classify these plasters under four distinct headings. First, the "stucco duro" of the Italians (of carbonate of lime), i.e., the "Limestone" of the hills, which was very carefully selected, thoroughly well burnt, and slaked for many years, thoroughly thumped, chopped, and kneaded about, and so toughened that it became very flexible and very malleable—so malleable and delicate, in fact, that die-sinkers used it in preference to wax. Another division was the "parge-work," or the ordinary lime, sand, and hair plaster used for parging flues, differing from the ordinary lime plaster in that it contained road scrapings, cowdung, and ox-hair. There was a third division, "plaster of Paris," or sulphate of lime, which was introduced into this country in the reign of Henry VII., although in general it was not much used until Elizabeth's time. Then there was the modern process of casting in fibrous plaster from jelly moulds.

THE USE OF "STUCCO DURO"

was known so far back as 3500 years B.C. In Italy it had been shown in the early part of the 16th century, and on some of the tombs in Rome executed in the first half of the century could be distinctly seen the incised marks of the metal tool. This work was modelled in "situ," and was not intended to be seen by daylight consequently; perhaps imperfections were excusable, but the work was very fine and wonderful for all that, and also coloured.

Later, a band of artists trained by Raphael executed much work in Italy and France. The photographs seen to indicate that some parts of the work were cast and stuck up. One photograph distinctly shows foundation or inspiration of the English school of flat relief work, and he might add that this pure, flat relief decoration was again obtaining another lease of life in quite a healthy way. Troubles followed in Italy, and this band of artists had to escape from Rome, and was scattered. Some went to Florence, some to Venice, and others to Mantua. A school of "stuccatori" modellers was founded in each place. The art spread all over Italy and from there to France, where Primaticcio decorated Fontainebleau for Francis I. This, however, was by no means the first stucco-work executed in France.

THE FIRST "STUCCO-DURO" WORK IN ENGLAND

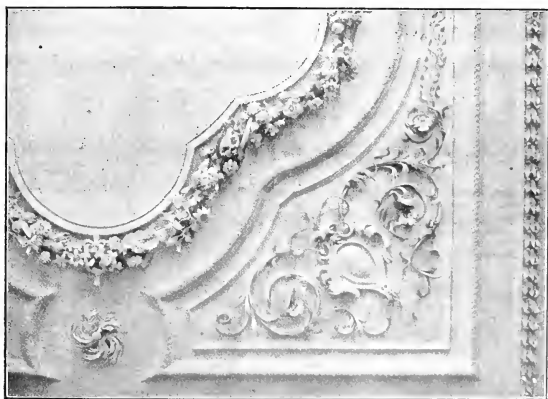
was carried out at "Nonsuch Palace," on the hill between Epsom and Cheam, Surrey, from whence the art, fostered by the Italians, spread sooner or later to Longleat. An English plasterer named Chas. Williams, who had modelled at "Nonsuch" and travelled in Italy, carried out the Longleat work, and that on the walls of the Giant's Chamber, etc., in the first Hardwick Hall. This work was of very simple character. In the latter Hall, the frieze in the throne (ft. 6in. deep) was done by men trained by Chas. Williams, and coloured in tempera. The leaves were simply dabbed on in large groups, and shaped with a small metal tool or trowel, and slightly undercut at the same time. They were done very quickly and simply; sometimes the birds and animals were painted on the groundwork instead of being modelled. It was found that the material was rather difficult and inconvenient to procure in those days in this country, because of the marble-dust and other ingredients that were necessary, and the art



Plaster Enrichment, made by Mr. George P. Bankhart.

did not live long in the hands of the English plasterers, after the Italian fashion; but the Englishmen stuck to their parge-plaster, and developed an art of their own. The first development in the English plaster ceilings took place in the form of very simple panelings formed by beaded mouldings, with little bits of sprigs of modelling stuck at the mitres and angles, and with rosettes, etc., in the panels. Then they added simple rounded mouldings, and this gradually grew as shown by the slides, until they covered the ceiling all over with easily repeating arrangement of panelings. This sort of thing continued to

and weather-proof. Old engravings of London pageants and street processions show the work very clearly. The work was of a simple type, put on with a trowel in situ in panelings and flowerings in between and under windows, across beams, and in the gables and oriel coves. He was sorry to say many examples shown had been much filled up with whitewash. One very interesting feature about this parge-work was that in Essex, Norfolk, and Suffolk (particularly Norfolk and Suffolk), one could pass through various districts, and every few miles mark quite a distinct change and type of work, showing



Ceiling, "Kingsley's Room," Royal Hotel, Bal-ford.

develop by degrees, and although the modelling was exceedingly simple, the work of this period was perhaps the purest and most English. The leaves nearly all took a slight concave form, with now and again convex lumps of flowers, fruit, bosses, and heraldic bearings and devices.

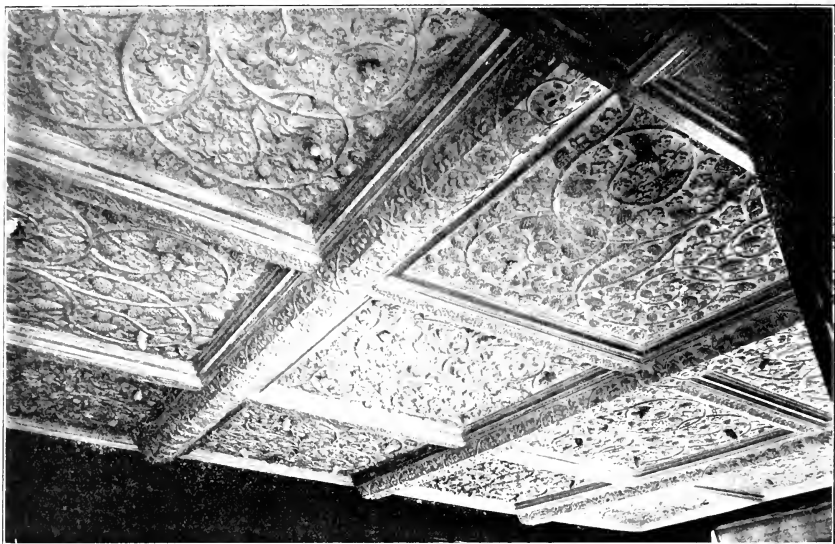
EXTERIOR PARGE-WORK.

was done practically all over the country, and in London particularly, up to the time of the Great Fire of 1666. The timber construction of the buildings was covered mostly all over with this parge-plaster ornamentation. The plaster was as tough as leather,

that it was done by the masons and bead plasterer or "daubers" or pattern mason, and that they worked in their own little radius, and had their own set of patterns, which they varied as required to some material used inside buildings. The examples shown were of overmantels and friezes in cottages in Barnstaple and South Devon, showing that the art was by no means confined to the larger buildings of the realm, but that it was general.

Referring to the Elizabethan period, there was an example in Burgh House, York, which he called special attention to. The work referred to was from a room of the 16th

* Abstract of a lecture delivered at the Edinburgh Architectural Association, Feb. 21.



CEILING, SPEKE HALL, LANCASHIRE.

of the ceiling. But in Agnes Hall, long since pressed save, but the fragment shown. The work was of modelled scrolls of roses, done in stucco and coloured. This was one of the most beautiful bits of modelling we had in this country. There was only a small part of it left. Many slides illustrated in great detail the drawing room ceiling at Stock Hall, Lancashire, where there were many panels between the beams, all different designs. Each panel was different in detail and type of flower, growing from a set machine stem work.

Several very interesting examples of ceilings, in which the stem work was modelled and stuccoed, the ceiling, partly pressed with a plaster stamp, and partly cast and stuck up, as in the flowers and humps were concerned, were illustrated, including work from Black Castle, Leith, with a full explanation of how each example was done, attention being especially drawn to the advantage of the plaster for the modelling of architecture as he was took of the opportunity given by the rooms arranged in the roof space, and the quaint carved developments thus afforded which were shown. Slides were shown of the ceiling of Queen Victoria's Bedroom at Holyrood Palace, Edinburgh, by permission of His Majesty King Edward VII., who had modelled photographs to be taken and shown. The ceiling of this room was formed originally into a large square panel by a moulding modelled and cast in a belt of foliage and fruit, and round the cast in individual members, and stuck up by leaf and fruit by front in a certain sense, growth of decorative rhythm. Running the large central square round at the cardinal points were four circles of foliage, similarly modelled, dividing four square panels filled with the struggling stem work modelled in stucco, and vine or oak leaf foliage, cast separately and stuck up loosely to the filling.

THE REMOVAL OF "STUCCO DURE"

The speaker then went on to describe and illustrate the removal of "stucco duro" in stucco modelled ceilings of Hugo Jones's

Webb's, Wren's period by the Italian plasterers, who wore goggles to shield their eyes from the falling fragments of lime stucco which they used. Fine examples were exhibited from Coles Park, Ashbourne House, Westminster, Holyrood Palace, Belton House, Melton Constable, Ashham Hall, Breckwell House, Grantham House, Greenbridge Place, and elsewhere, showing the beauty and technical value of stucco duro as a material for working in stucco. In all these examples it was explained how the quality of the material which could be

could be modelled as thin in substance as the petals of a rose or a piece of drawing paper.

THE SECRET OF THE BEAUTY

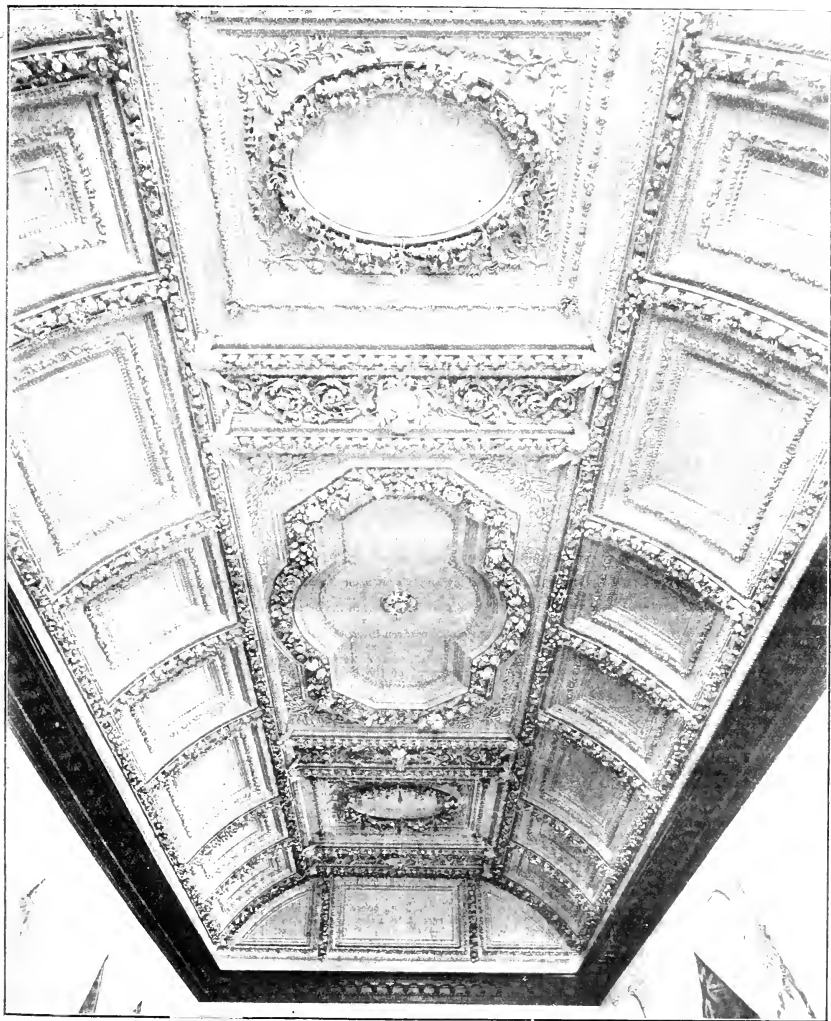
of this work is due to the employment of a particular plaster material and process that has not been available in modern times, the composition and manipulation of which have been lost sight of for two centuries until now. The plaster used for this work is the material spoken of at length by Vitruvius in his writings on Architecture—viz., very carefully selected lime which has been slaked for many years, and mixed with finely sieved marbledust and various ingredients to regulate the setting as required according to the size of the work, or the thickness of the plaster which was worked in the fingers, or with the steel trowel. This plaster is very fine and smooth, intensely sensitive, and impressionable to the touch and to the desire of the modeller. It has a fine reflective quality possessed by no other plaster, can be worked very thinly and delicately, and dries out very hard.

It will be seen from a glance at the photographs, that by no other process or material could the modelling of this deeply wrought and overlaid nature be cast or produced, and as an instance, Mr. Bankhart mentioned that twelve years ago, when the famous ceiling at Kilmainham Hospital, Dublin, was taken down and remade owing to its dangerous condition, the modelled detail had to be reproduced in compressed papier-mâché, because the art of making the old stucco duro plaster, of which the original ceiling was composed, was lost, and the material was thought to be unobtainable. Detail thus wrought and built up in the fingers of the modeller could not be reproduced by casting in any material, or by any mechanical process whatsoever. The art of stucco-working in these islands died just previous to the introduction of the compo decoration by the Bros. Adam, and during the last eighty years it had been replaced chiefly by the mechanical reproduction in fibrous plaster cast from jelly



Plasterwork executed by Men in Mr. George P. Bankhart's Workshop.

regulated in the setting to any degree of time by the introduction of various ingredients, enabled the modellers to give sharpness of edge, thinness of substance, and depth of undercutting, and relief to any extent; how the flower heads stuck out from the bulk and were attached by isolated stalks steeped in the same "plaster"; how in some cases the stem work curled round and round the highly relieved lengths and garlands of modelling, and how the leaves and flowers



CEILING OF THE ROYAL HOSPITAL, KILMAINHAM, DUBLIN.

mouldist of clay modelled decoration, based largely on the lines and spirit of the stucco work (erroneously known as Georgian) done under Inigo Jones, Wren, and others. The result in comparison was little short of a dull parody of this really beautiful old work, which was, and is still, desired by many architects. The jelly process is wrong in principle, and no matter how good the original clay model may be, it cannot be modelled like the stucco stuff, and in the manifold process of reproduction loses any

degree of quality, definition, thinness, crispness, and depth of undercutting that the original may have possessed.

Mr. Bankhart wished to call attention to the fact that this old stucco duro material is now to be had, the secret so far being his own, and that several large ceilings are now being worked in exactly the same Italian stucco duro material and process as the famous ceilings above referred to. Side by side for comparison he showed some old and modern detail, from which it was seen that

the old material and art are available, and available for the first time after the lapse of a couple of centuries.

ANOTHER INTERESTING PROCESS.

was that of modelling the leaves, fruit, and flowers, etc., individually, casting them individually in plaster of Paris, or Keene's cement, and plucking them up at the end of a hollow groundwork in sections, and so forth, as illustrated in two or three examples on the screen. Even this would not give the

same beauty of definition, but it was the next best thing, and required the judgment and arrangement of an artist which was not always forthcoming in the purely mechanical training of the modern plasterer, although there were signs of considerable ability in this direction.

The lecturer said that he had sometimes been misunderstood and accused of prejudice, too, almost to prejudice, for one kind of work in preference to another, viz., the earlier work for the later, but such was in no way the case. He believed he would be borne out by all others who knew anything of the different materials and processes, that each type of work was equally beautiful, interesting in its own way, and equally legitimate according to the rightful use of the

Much good and interesting plasterwork was being done in different parts of the country, and there was every encouragement for the younger generation of plasterers to study and take up the once living art of their trade and to develop it in a manner suitable to, and worthy of, our modern methods of construction, and this he firmly believed would come sooner or later.

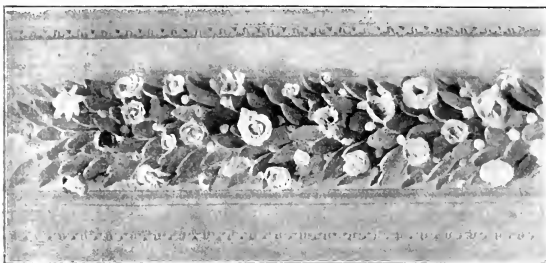
The lecturer dealt at some length on the opportunities offered to architects in the modern system of concrete construction, in the shaping of concrete barrel vaultings and saucer domes for simple decorative treatment, in the arrangement and placing of iron girders to form a scheme of design apart from the purely engineering aspects of their setting, in the decorative treatment of concrete

had frequent opportunities of observing the high-mindedness and disinterestedness he displayed in all that he did for the Institute. A man of the strictest probity and integrity, he placed the honour of the profession and the well being of the Institute before everything. Mr. Graham, when elected Honorary Secretary, must have been nearly approaching the three-score years and ten, and though at that age his conservative tendencies were somewhat strongly pronounced, he was never intolerant of the views of those who differed from him. At the Council meetings he spoke but seldom, and if he was a little lacking in initiative when some necessary movement was in question, when once a course of action was decided upon he would devote himself to the work expected of him with all the zeal and thoroughness of one many years his junior. His courtesy and urbanity of manners were familiar to us all. No one could discharge with greater distinction the various public and social functions that fell to the lot of the Honorary Secretary of the Institute. He was true and sincere in his friendships, ever sympathetic and warm-hearted, and one of the cheeriest and most agreeable of companions.

At the suggestion of the President, the members rose silently in their places as a mark of esteem and regard for Mr. Graham's memory. Mr. Hare added that he was sorry also to have to report the decease of other old and highly respected members:—Mr. Thomas Miller Rickman, F.S.A., who had been an Associate since 1854, had served on the Council of the Institute from 1880 till 1896, and was a generous donor and subscriber to the Architects' Benevolent Society; also of Mr. Charles Smith, of Reading, elected an Associate in 1854 and a Fellow in 1870, and Mr. William King Lucas, of New Barnet, elected an Associate in 1881.

COLLEGE ARCHITECTURE.

A paper on this subject was read by Mr. Edward Warren, F.S.A., Fellow, and was illustrated by over one hundred lantern-slides and a large number of drawings, photographs, and prints hung on the walls. The lecturer remarked that the recognised components of the general of buildings which form the typical English College are ever the same. The chapel, the dining-hall, the master's dwelling, and the dwellings of the inmates of various degrees, with the kitchen and other offices, are the invariable constituents alike of the colleges at one of our old universities, the Inns of Court or of Chancery, the old public schools, or the almshouses. The last are, perhaps, generally unimpaired, with a library which is the first that is, of course, an invariable adjunct. The similarity in plan and distribution of parts of almshouse and college was often very striking. The type of plan with which we are all familiar in the colleges of Oxford and Cambridge, at Eton and at Winchester, grew by natural evolution out of the plan of the religious houses, alongside of which they grew up, where indeed they were not themselves founded, primarily as religious establishments. The Vicar's Close, at Wells, is an interesting instance of a purely residential college, founded in 1347 for the express purpose of providing lodgings for the chantry priests or vicars choral of the cathedral. It provided upon a singularly narrow site forty-two distinct little houses for its inmates, each complete with living-room, staircase, and sleeping room, the ground floor, and a sleeping room above, the rooms being in the clear about twenty feet by thirteen feet. At the southern or entrance end are the dining-hall and library, with the porter's lodge; at the northern or inner end, the admirable little chapel. The site measures roughly 180 ft. by 110 ft. at the southern, and 135 ft. at the northern end, and the skilful but, unfortunately, unknown architect arranged the dwellings upon lines inclining inwards from south to north, possibly with the intention, and certainly with the effect, of increasing the apparent length of the northward vista from the entrance. Anything more charming, of its order, in Medieval architecture, it would be difficult to find. The hospital of St. Cross, without Winchester, was founded



Plaster Enrichment, made by Mr. George P. Bankhart.

various plasters employed, bearing in mind the nature and strength or slightness of the various relets needed for the particular work in question. A few examples of the plaster-work following this period were then shown, illustrated by examples of Wren's later work,

which the Dutch modelers reintroduced for a time the French type of very inferior, differently, also the work of Hawksman, Archer, Talmont, and others. The work of the Bess, Adam, who took their inspiration from the Pompeian masterpieces, and gave their style the last brilliant flash of artistic plaster-work in a plaster composition in which they were financially interested was described. Then followed that deplorable period of so-called pseudo-Classicism, in which the London squares and streets, and also the provincial towns, revelled for a time in pseudo-Classical ornament that sent a thrill of hatred against plaster decoration, and which had created a prejudice that with a few exceptions of the general public (and even one or two some architects) had lasted to the present day, and done so much to retard the real development of the plasterer's art. Mr. Bankhart then passed on to

MODERN MATERIALS AND MODERN WORK.

showing illustrations that a considerable amount of work had been done by living artists in these plasters, who had by diligence and study picked up the threads of the forgotten methods of working, and applied their knowledge to modern materials and modern construction with considerable success, and even as artists, as well as craftsmen. One, he mentioned, was at last enabled to design at recent times, and another to execute, a fine piece of a new plaster, which he had done by plastering. The lecturer then dealt with the plaster-work of the present time, and the various methods of working, and the various materials employed, and the various uses to which they are put, and the various results that can be obtained. He then showed a number of illustrations of modern plaster-work, and the various methods of working, and the various materials employed, and the various uses to which they are put, and the various results that can be obtained. He then showed a number of illustrations of modern plaster-work, and the various methods of working, and the various materials employed, and the various uses to which they are put, and the various results that can be obtained.

piers and pilasters, the simple vaulting, cross-vaulting and sectioning of rooms and the roofs of houses and public buildings, as illustrated by many slides shown on the screen. Details of many simply decorated flat ceilings, evincing quite a modern spirit in the arrangement of belts of modelling were shown, possessing distinct modern interpretation and refinement of design and workmanship, whilst at the same time reflecting something of the traditional treatment of the past. In conjunction with this, various interesting methods of working suitable modern plasters were explained. The lecturer concluded with the optimistic hope and belief that architects were giving much more thought and attention to the natural constructive developments of their buildings for decorative purposes than they had done in the past.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The fortnightly meeting of the Royal Institute of British Architects was held on Monday evening at 9, Conduit-street, W., the President, Mr. Leonard Stokes, occupying the chair.

Mr. H. T. Hare, hon. secretary, said he had with great regret to announce the death of Mr. Alexander Graham, F.S.A., a well-known and highly-esteemed member of the Institute, since his election as a Fellow in 1879. For twenty-two years, Mr. Graham served on the Council, for seven years as vice-president, and for four years as honorary secretary, a position from which he retired in May, 1909. In all these capacities, and as a member of the Board of Examiners, he was most assiduous and painstaking in his endeavours to further the best interests of the profession. Mr. Hare proposed a vote of condolence with the members of Mr. Graham's family, and read a letter from Sir William Emerson, past-president, expressing his personal loss in the death of his old and esteemed friend, Mr. Alexander Graham. He added, "A steadfast supporter of the Institute, he was from the first one of the most active and zealous of its workers. During my term of office as member of Council, as Hon. Secretary, and afterwards as President, I

by Henry of Blois upon the site of an old monastery. The hospital came under William of Wykeham's governance in 1372, and though there is no documentary evidence of rebuilding at his hands, there is considerable architectural evidence of synchronous work, and he is known to have repaired the hospital. His successor, Cardinal Beaufort, brother of Henry IV., enlarged the choir and the buildings. The general plan of the existing buildings consists of an outer and an inner court. On the east side of the former is the "hundred men's" hall, on the west are the kitchen and offices, on the south Cardinal Beaufort's gatehouse, the porter's lodge, and the refectory, the entrance from the road being on the north side. The great inner court has the master's lodgings on the north side, the brethren's dwellings occupy the western and half the southern, while the large cruciform chapel with its central tower commanding occupies the south-east angle, and is provided with a covered cloisterway or ambulatory, along the east side, with the gatehouse buildings. It is all thoroughly collegiate, finely planned and beautiful in detail, and provided with ample gables and windows, the finest and most interesting of ancient English schools. Though many Mediaeval colleges retain portions of monastic buildings, and some of those deliberately built as colleges copied the monasteries in respect of internal cloisters, they contain no such features as the church, the chapter-house, or the common dormitory or "dorter," the last a typical and inevitable feature of all ancient colleges is the claustral plan, the enclosed court or quadrangle; and the typical early college plan is a simple quadrangle entered in the centre of one side, under a gateway tower, and containing the chapel, the master's lodge, the library, generally on an upper floor, the chambers, the parlour or common room, the hall opposite the entrance, and the refectory. The students slept three or four in their chambers, or in the roof garrets, the corners of the chambers being sometimes screened off as studies. Both at Oxford and at Cambridge it was in the late 13th and early 14th centuries that colleges, upon a deliberate and carefully-considered plan, both as to buildings and constitution, and intended largely for the maintenance of under-graduate students, were first founded and built. The earliest of English colleges in the modern sense—Merton College, Oxford—was founded deliberately by Walter de Merton as a training school for "secular" clergy. The statutes of Merton, the model of subsequent foundations, both in Oxford and Cambridge, date in their earlier form from 1264, and in their final form from 1274. The chapel, begun 1294-97, or thereabouts, completed, is its finest and best tower, in 1450, is unusually magnificent. The fine "Fellows' Quad" was built about 1608 to 1610, and its front to the meadows is a beautiful example of its style. New College, founded in 1379 by William of Wykeham, set the fashion in plan and manner of buildings for subsequent centuries. We find at New College the full acceptance of the quadrangle or claustral plan, as when the usual, the inclusion of an actual cloister, monastic in type, a cloister pure and simple, leading to nothing but itself and its bell tower. It is the last of its kind, having no chambers around it like all subsequent college cloister courts. The Mediaeval portion of the college, still the nucleus of the whole group, consists of the great quadrangle, on the western side, and the imposing gate-tower, flanked on the right by the ample "lodgings" of the warden, and on the left by the porter's lodge. The north side of the quadrangle is occupied by the chapel and dining-hall. On the east are the library and chambers, on the south again chambers. The cloister lies to the north-west, with its admirably simple but untroubled bell tower on its north side. Eastward lie the gardens. The upper story was added late in the 17th century, with lamentable detriment to the proportions of the front quad, and to the relative scale and dignity of the chapel, and the back quadrangle was added in 1684. New College, conspicuous in rare beauty and

charm, is of extreme importance as the most complete surviving example of a deliberately planned Mediaeval college, in the educational sense, attached to a university. It became largely the model for subsequent college building both at Oxford and at Cambridge. William of Wykeham, Bishop of Winchester, and Governor of Edward III.'s buildings, founded his college of St. Mary de Winton at Winchester as the preparatory school for young boys who were to be passed-on to his New College of St. Mary de Winton at Oxford. The building of Winchester School seems to have begun in 1387, and Logan's view shows at once the striking similarity in type, detail, and actual arrangement between it and New College. The school is entered in the same way beneath a gate-tower, and again you have upon the immediate left hand the chapel, and further on the hall, in a continuous range. The building materials are different. As at New, the claustral plan is fully accepted, and there is a small actual cloister very similar in detail to that at Oxford, but almost filled by a small chapel, the chapel of St. Mary Magdalen, at Oxford, "the most noble and rich structure in the learned world," says Antony a Wood, was founded by William Patten, better known as William of Wyndle, Bishop of Winchester, in 1458. The Great Tower, the prime glory of Magdalen, and built apart from the chapel as at New, was obviously built in 1492-1505 as a completely detached tower, since its bare quadrangle exists within the later buildings. The master mason was one Raynold, or Raynolds, and it was supervised by two Fellows, Richard Gsomore and Thomas Pratt. The new building of 1735—a fine, plain, well-proportioned structure, contains excellent oak staircases and admirably panelled rooms. The design was the work of a member and former Deny of the college, Edward Boulton, who desired to demolish the greater part of the cloisters, and to build a great quadrangle, linking up the chapel hall and Great Tower. At Cambridge there were earlier colleges than New, and many earlier than Magdalen, such as Peterhouse, 1284; Clare, 1326; Pembroke, 1334; Trinity Hall, 1350; Corpus Christi, 1381; Gonville and Caius, 1398; and King's, 1441. Peterhouse has lost its 14th-century aspect, though some of the original fabric remains, now masked by later facings. Clare College has little or nothing to show of its 14th-century foundation. It took quadrangle form early in its career, but on a small scale. It was much rebuilt after a fire in 1521, and in 1638 the new quadrangle was begun, Thomas Grumball being master mason or architect, and John Westley builder. Edward King, the well-known Cambridge scholar, 1640. The work seems to have begun again with the Restoration, and to have proceeded between 1662 and 1715. Robert Grumball being the architect. The present chapel was begun in 1763, the old one being then pulled down. Sir James Burrough was its architect, succeeded after his death in 1764 by James Essex. At Pembroke College there is still something of the 14th-century character, though the hall was rebuilt in 1452, and in 1663 a large part of the second court was begun. Sir Christopher Wren's chapel, of extreme interest as the somewhat naive and inexperienced early work of that great architect, was consecrated by his uncle, Bishop Wren, in 1664. It was joined up with the old court by a new range of buildings in 1678. Corpus Christi College, Cambridge, the earliest at Cambridge, and must have been a dignified and interesting college. Its front court was, however, practically rebuilt between 1823 and 1827 by William Wilkins. The delightful little back court still exists. At Jesus College, where pre-existing conventual buildings were absorbed, the inner remodelled cloister court is the common feature, and leads to the beautiful old convent chapel. The normal college plan at Cambridge is seen in Queen's, 1448; Christ's, 1505; and St. John's, 1508. In all of these the chapel, hall, kitchen offices, parlours, master's lodge, library and chambers were ranged round a quadrangle with a gate-tower opposite the hall. Eton was designed to be

congruous to King's College, and it is only as a preparatory school, preserving the same type of Oxford and Cambridge plan, that it is seen. Its plan is claustral, with an enclosed court, one the further entrance, a large chapel occupying the whole of the side of the first court, and the last court on the west side, and a small square tower in the middle, with delightful effect. Stone was used for the chapel, being sparingly used in the almshouses, or hospitals followed by the lines of development to educational colleges, and in both, the type of college plan used had been firmly established and still adhered to very generally to the claustral plan, houses and colleges continued, and to a large extent still continue, to follow the arrangement of the enclosed courts. That acceptance has evolved from the ordinary monastic plan, which was also the accepted dome-plan of the medieval building, and may be found in houses of any size or dignity built up to the 17th century and even later, and, as long as the height of the enclosing buildings is small, or the internal dimensions of the court are relatively large, it is an excellent and architecturally speaking a satisfactory plan. But as the height of the surrounding buildings grew with the need of increased accommodation, it began to show demerits in its exclusion of sunshine and free air currents. So the practice began of leaving out the fourth or southern side to the quadrangle, or merely replacing the buildings by a relatively low screen wall. Dr. John Caius, a native of Norwich, who refounded Gonville Hall as the college of Gonville and Caius, Cambridge, has the credit of being the first to make this innovation, though Magdalen College had a front quadrangle open to the west. The pride of Cambridge, the largest, and in many ways the finest, college at either of the old universities, is Trinity College. It is not, however, a homogeneous and deliberately planned college. Trinity was built up of colleges and several hostels, parts of which were converted or rebuilt, and other parts of which remain. The charming fountain, built in 1692, was rebuilt in 1716. Ralph Symons was the master mason or architect of the early 17th-century work at Trinity, as of the second court of St. John's, in the library of which college some of his drawings are preserved. He entered into a contract, together with Gilbert Wigg, and lost one of his hands during the progress of the work. The building at Emmanuel College, begun in 1632-3 by John Westley, bricklayer, and Henry Man, carpenter, was finished in 1634, and still remains practically unaltered but for its dormer windows. The plan of the open-fronted "quadrangle" grew in favour, both at Oxford and Cambridge, and though many colleges, out of conservatism or desire for the utmost amount of housing-room, still stuck to the ancient plan of complete enclosure, a great many adopted Caius's plan, and by the end of the 17th century it had become quite common. It is not, however, and generally a treatment that is by no means essentially collegiate, though commoner here, perhaps, in colleges than elsewhere. Nearly all our great public buildings have internal quadrangles. Where, however, it was desired, for reasons economical or other, to have the effect of the completely-enclosed quadrangle, some colleges, and notably Peterhouse, raised their buildings or open colonnades or arcades so as to obtain that free air-passage or perflation which we now so much value. This is an excellent and architecturally effective plan. It has been used, and generally as elsewhere, in the 17th century was a busy time of building. A great deal was done at Cambridge, and at Oxford the days of King James I. saw the building of Wadham College, which is the most complete, homogeneous, and unaltered college at either university. Mr. T. G. Jackson, in his most interesting book upon this college, of which he is a Fellow, states his clear opinion that a certain William Arnoll, or Arnold, who is described as a head workman, and was paid £1 per week, was the actual architect. The plan is simple, direct, and traditional. A large single

quadrangle is entered on its west side by a central gate-way, which is faced by the continuous range of chapel and hall. The warden's lodging is on the north side; the remainder of that side and all the south range contains chambers. The general character is Gothic, the chapel, with its traceried windows, especially so; but details of a pseudo-classic character, in the well-known Oxonian manner, abound. The 17th century was in less prolific almshouses than in colleges of learning. Savile College, at East Grinstead, built a few years after Wadham, is a good example. It was founded about 1616 by Robert Savile, Earl of Dorset. One of the statest of English almshouses is the Abbot Hospital at Guildford, begun in 1619. This has a great gate tower, with four octagonal angle turrets, in the manner of a Cambridge college, though its founder was an Oxford man. It has a fine quadrangle, and the handsome brethren's dining hall, the fine staircase, the panelled corridors, and splendid hall—all reflect the grandness of its founder, Archbishop George Abbot. Complete with chapel, hall, stained glass, heraldry, and everything handsome about it, it is a typical college in disposition and detail, and its fine, warm brickwork is delightful in colour. Contemporary with Wadham at Oxford is the Fellows' Quadrangle at Merton, before alluded to, and closely following the front quadrangle at University College, begun in 1624, but not finished till 1671. In 1627 the well-known porch of St. Mary's was built, in 1640 the wonderful staircase at Christ Church, and in 1646 came Brasenose Hall. At Christ Church, the first second-hand college, moreover, that has the distinction of actual work in Wren, and much by his pupil Hawksmoor. Of Mediaeval foundation, it was entirely rebuilt between the reigns of Charles II. and George II. It is extremely difficult to apportion with certainty the work of master and pupil; but the hall and chapel were undoubtedly designed by Wren, who spoke of this design as one of his best works. The library, which separates the Fellows' Quadrangle from the back quadrangle, contributed with confidence to Wren, and it seems more than probable that the general conception of the design for the reconstruction of the college came from the master, working in intimate collaboration with the pupil, who subsequently carried out most of the buildings. The completion of the front quadrangle, with the street front and screen, and the picturesque neo-structural cupola, are clearly Hawksmoor's work; but it is probable that Wren did some say in the fine planning of the quadrangle, with its three open cloistered sides, affording covered communication with all its buildings. This front quadrangle, in plan and proportion, a model collegiate order. At Oxford, Wren's earliest work seems to have been Trinity College Chapel, 1667, followed closely by the Sheldonian Theatre (1669) the Ashmolean Museum about 1680, and the library at Christ Church, known as Tom Tower, finished in 1682, and designed in the Gothic manner, and the most completely satisfying of his essays in that style, showing a boldness, a harmony, and an adaptability that witness to his amazing fertility. At Trinity College, Oxford, the north wing of the garden quadrangle, 1665, is attributed to Wren, who built the "top" in 1667. T. Strong being the master mason. At Cambridge, the chapels of Peterhouse and Emmanuel and the

superb library of Trinity College swell the list. The last, built of brick faced with ashlar, was begun 1675-76 (Wren's original proposition having been a circular building with a dome), and forms the west side of Neville's Court, which lies between the great court and the "backs," facing the dining hall. It is a notable recall. Sir Thomas's library at Venice. Wren here placed the lower side of the library floor at the springing level of his arcade, in order to get full height internally for the tall bookcases, and the window range above, without dwarfing the quadrangle by a lofty building, and also to keep his horizontal lines in some conformity with those of the colonnaded sides of the court. In 1672 Wren had designed the new buildings for Christ's Hospital, better known as the Blue Coat School, in the City of London, a building treated in simple, but beautiful building. It is confidently asserted at All Souls' that the fine screen in the beautiful little chapel is by Christopher Wren, sometime Fellow of that college. Morden College, Blackheath (1685), is generally ascribed to Wren; but Messrs. Belcher and Macartney ascribe it rather to Nicholas Strong, the mason so much employed by Wren. It is probable that Wren largely inspired and supervised the designs. To a greater, more inspired, and more scholarly architect—James Gibbs, who may be considered as one of the direct heirs to the Wrenian or English Palladian tradition, and who studied under Fontana in Rome—Oxford owes the magnificent design of the Radcliffe Camera, and Cambridge those of the splendid Senate House and the beautiful Fellows' building at King's (1723). The latter was a part only of Gibbs's plan, and forms the west range of the existing court. Gibbs, in this instance, actually superseded Hawksmoor, whose more ambitious and extensive plan (1712-13), including a large quadrangle, a cloister-court, and a bell-tower. The ancient almshouses or hospitals are, like the colleges, not of English origin; but, like the latter, have survived here, while they have largely died out abroad, and have become typically English institutions. In conclusion, Mr. Warren offered a few suggestions as to the details of college planning. If you adopt, he observed, the quadrangular plan, you will be wise, unless the ground and other circumstances permit the use of a courtyard with low surrounding buildings, to provide an open front to the south, or else to have open corners, which can be bridged by arches, to admit of air currents. Such open corners can be easily and effectively managed if you adopt the cloister ground plans with arcade or colonnade. Or you can, perhaps, find useful suggestions in the double-screened or pierced ground story of Peterhouse. As the plan of repeated staircases, with their dependent groups of rooms, each on a different floor, staircases, and is likely to fill a fine favour in college buildings, to provide a moment to consider some of its possibilities. But if you arcade your ground floor, you must narrow the depth on that floor available for rooms, and will probably find that lecture-rooms, bursaries, single rooms for non-resident tutors, or single sets can best be placed there. If bedrooms are supplied, the bedrooms can be very small—say about 100 square feet, or even less. Bath-rooms are very generally placed in the basement, and this, where the ground level is raised a little, so that window-heads can be brought slightly aboveground, does very well, provided that the necessary areas for light and ventilation can be outside the quadrangle, and wide enough, and that fresh-air inlets are provided in the quad, so as to give a cross current. The baths are generally arranged in cubicles some 7ft. by 5ft., with partitions 6ft. high or thereabouts, and raised well off the floors. A service-room for keeping and drying towels, and a general dressing-room, or two, is an advantage, with a supply of lockers. If you have a hailroom, and consequent bath boiler, in the basement, a hot water supply to each pantry can be arranged. The Fellows' rooms are usually now in sets of three, a large tutorial room, a smaller sitting-room, and a bedroom—and

should have an "oak." College bursaries are merely offices for college business, and should be placed near the entrance. There must be at least two well-lighted rooms—the bursar's and bursary clerks'—and a strong-room and lavatory. Frequently more rooms are needed. The master's dwelling has grown from the few rooms formerly allotted to collegiate masters, and are now complete domestic dwellings for married men, much like a good rectory house in requirements, but with a really large study or library, with an anteroom leading to it. The dining-room should also be large. The common room has expanded into a group of rooms, constituting the Fellows' private club. The junior common room is the undergraduates' club. It is useful to provide a second room for reading and writing, and for both senior and junior common rooms a distinct lavatory is advisable. Residential colleges, for women are multiplying and extending, and growing in architectural importance and beauty. These naturally require somewhat different arrangements, the general system being more domestic, and open-air passages and basement bathrooms being usually avoided. The chapel of a college is traditionally a chancel, screened off from the ante-chapel to which the non-collegiate are admitted, and is the survival of the monastic choir screened from the secular part. A college chapel, if of greater height than adjacent ranges of the building, and placed axially more or less east and west, should, if on the side of a quadrangle, be always on the north side, so as not to cast its shadows where shadow is detrimental. The same observation applies to the hall, if lofty and if similarly placed. The college dining-hall is the great social centre, and the common meeting-place of the college. It has to serve for examinations and special assemblages of various sorts. It needs careful lighting at night, as by day, and careful warming and ventilating. Low or high-pressure hot-water systems, fresh-air inlets, and the electric fan provide for these requirements. The recognised collegiate plan for libraries is not only picturesque—i.e., architecturally effective—but practical. The double book-cases, standing at right angles to the walls, give increased book-space, and at the same time divide the room into secluded bays where students can sit at a table, work in comparative isolation. The bays should be not much less than 9ft. between the book-cases, and will be better from 10ft. to 12ft. wide, where tables are to be inserted; and this arrangement implies a window to each bay. North and east are the best main lights; but if a long library is lit from its north and south or east and west sides, blinds or curtains will be needed on the south or west sides. In planning a non-residential college, say for married men, or for a large town, and intended for both sexes—the problem becomes very different. The chapel is usually not required, the hall subserves different purposes, and is usually a speech-hall; lecture-rooms, lecture-theatres, and classrooms, scientific laboratories and workshops, are needed, and not infrequently some sort of museum is added, and a gymnasium is not unimportant.

Mr. Basil Champneys, in proposing a vote of thanks to Mr. Warren, remarked that there were one or two problems connected with collegiate planning which still needed solution. It was very puzzling to consider how the prevalent arrangements of a college came into being. Every monastery was provided with a common dormitory, whereas students were housed on a totally different plan in houses of two or three floors, having staircases leading on right and left, into sets of small rooms. Where the monastic plan was adopted, the apartments utilised for sleeping were fewer than in a monastery. Indeed, there was no hint that monastic precedent was observed in a university town. The only plausible theory was that a university college was evolved from a conglomeration of small halls, occupied as hostels, and this would account for the separate staircases to small sets of rooms.

In any case, the staircase plan had held its own as the most practicable arrangement. Many years ago the speaker made an exhaustive examination of staircase and corridor plans, and ascertained, by careful comparison, that the former was at once the most convenient and most economical arrangement. A practical disadvantage in the corridor plan was that in modern schools when this was adopted the long gallery was used for fighting, football, cricket, and other noisy games, and became a nuisance to the studiously-inclined men. In women's colleges this drawback was not noticeable, and the corridor was less disadvantageous. In modern college planning the predominance of science teaching necessitated the provision of numerous well-lighted laboratories and classrooms. This presented fresh problems which would have to be solved by the architects of to-day.

Professor F. M. Simpson seconded the vote of thanks, observing that in England the roots of our universities had struck deeply into the soil, and that the bulk of Italy, where the students migrated in body, was not one city to a student, and a centre of learning in one generation was entirely deserted by the students of the next period. The Italian universities flourished before the 14th century. In German universities lodgings were provided for the classes represented by tutors and Fellows, but no housing provision was made for undergraduates. Paris was the first university to adopt the college system, and from thence it spread throughout France and Flanders to England. It was a problem why the fifty colleges once in Paris ceased to exist. They were probably emptied at the end of the 16th century and the beginning of the 17th century by the religious controversies and civil wars—disturbances of thought that in England were contemporaneously solved by the Reformation. This brought to an end the supply of clerical students; but almost at the same time the Renaissance created in this country a thirst for classical learning, and resulted in a great increase in scholars in colleges. It was difficult to say why this did not also occur in Paris, as in Oxford and Cambridge, unless it was that the students left Paris for the Jesuit colleges in other towns. He regretted that Mr. Warren had not dealt with the modern requirements of colleges, especially the great laboratories that were urgently necessary, and which demanded designing lofty rooms with huge windows, and walls reduced to a minimum. Indeed, the three essentials of a modern university building were light, more light, and yet more light.

The Rev. J. B. Lock, of Cambridge, said Mr. Warren had failed to refer to the long gallery, generally leading to the master's lodge, which was a feature of some of the Cambridge colleges—notably Queens', Pembroke, and St. John's. He thought Mr. Champneys' question as to how our university colleges evolved their plan might be answered by reference to Haddon Hall, which was almost an exact replica on plan of an Oxford or Cambridge college, with its screened hall and chapel on the north side of a quadrangle, round which were grouped the combination room, library, kitchen, and long gallery, and other dwellings for domestics beyond the quad. It was to be regretted that the lecturer did not show how the original college arrangements had of late years been dug out of Gonville and Caius College at Cambridge, from under the extensions made by Savin and earlier architects. The original hall and library had now been recovered. Mr. T. G. Jackson had solved the problem of affording adequate light and air to the new quadrangle consisting of the Geological Museum and other buildings at Cambridge by carrying the Law Library on a range of open arcades.

Mr. T. G. Jackson, R.A., believed that the plan of the Oxford or Cambridge college grew up accidentally. At first only a university existed, with no colleges, and young men were lodged in a number of small halls which were leased to men who at first merely

housed, and rarely taught, the students. At an early period in the history of Oxford there were over three hundred of the little halls, or inns, each, like a separate house in a street, being independent of its neighbours. By degrees these little halls were absorbed in colleges. The halls, and also the colleges, were designedly different from monastic institutions, between which and the colleges there was great rivalry, and often ill-feeling.

Walter de Merton, for example, ordained that members of his college were on no account to take religious orders. Fifty years ago the college rooms were arranged and furnished much as in Medieval days. The original plan was that a set of rooms consisted of a large apartment where a Fellow and a few scholars lived; off these were three little closets or studies, each provided with a shelf, stool, and curtain, but with no stove, and here the young men did their reading.

Mr. Aymer de Vallance agreed with Mr. Jackson that our colleges were not specially planned for the purpose, but were gradually evolved; but he considered there was no rivalry or ill-feeling between college and monastery. In the earliest type of college the chapel was not *de requiritur*. Each college constituted a parish, and afterwards applied for permission to establish an oratory. At a later period the clustered quadrangle was used as a graveyard. He exhibited a series of lantern-slides showing comparative plans and elevations of eight college chapels in Oxford, and argued that, while all had the T-form on plan, Merton was the only one which consisted of a choir, transept, and central tower to which a nave had been intended to be added. In all the other seven cases the fabric consisted of an aisleless choir and very short nave with deep aisles, as at New, Queen's, Wadham, Oriel, Brasenose, and elsewhere.

Mr. Warren, in replying to the vote of thanks, explained that he had not assumed that the T-plan of college chapel invariably provided for transepts and no nave, as Mr. Vallance had suggested.

"BUILDING NEWS" DESIGNING CLUB.

A DETACHED WATER-TOWER.

The materials for this structure were not strictly limited, as perhaps they might have been, and restricted to ferro-concrete; but these most competent to deal with that material do not happen to be members of our Designing Club, and perhaps, if specialists were members, they in their turn might not stand much chance when dealing with our more ordinary subjects. We might, of course, have had down some hard-and-fast condition designing the construction for the designers in that way, and risk the chance of many abstaining, in consequence, from entering the lists. Such a restriction would have facilitated our duty in deciding which proposal sent in should rank as the best, the conditions being uniform as to material, instead of having to determine the competition on broader lines, with the choice of brick or concrete, or a combination of both, being left to the competitors. We decided on the latter course, and quite realise its objections, the result, as a matter of fact, being that in some cases the schemes submitted are faulty structurally, being neither one thing nor the other, but a mix-up. We have placed "Veritas" first, "Black Diamond" (device) second, and "Why Not" third. The following were the instructions for competitors:—

"A Detached Water-tower.—The tank to measure 50ft. diameter, and 16ft. high at the sides, and the height to its base from the ground line is to be 50ft. The site is on the slope of a hill, the tower standing on a flat plot levelled for the purpose on a rock-bed foundation. The main point to observe in so far as the appearance is concerned, is that the tower will form a feature on the profile of the hill from the distance. A means of access to the tank (which must have an

arched bottom and domed top, in addition to the height of the sides) is to be provided. This probably would be best arranged by means of a circular spiral iron staircase in the middle of the tank, which will be set up in sections, resting on iron covers below its bed to carry it. The construction may be in brick or in ferro-concrete, but if of brick or rendered in cement. The tower or enclosure the tank or not, if the competitors wish to make a feature of the tank by showing it outside, but, anyhow, it must be robed in, and on the top an outlook gallery of small size should be arranged as part of the scheme. The shape and materials of the roof are left to the competitors; also the architectural treatment. The wind-pressure of an exposed situation is to be allowed for. This applies more to schemes of open design in the construction of the supports. Scale 1/8 in. to the inch. Four plans, one through section, and one elevation, and a view."

"Veritas" displays a directness avoiding any treacherous concern for precedent or reference to an architectural lead, depending without hesitation on the object of the design, and for the style of its treatment, and without fear displaying the tank in a sensible way. The structural connection between the concrete piers and the octagonal walling, done in brick, would be liable to fracture, owing to the more compressible nature of the brickwork, and if a straight joint is intended, to obviate such a contingency, the size of the concrete piers must be considerably reduced to permit of the brickwork completing the octagonal shape of the walling, or the wall must be modified and lessened just where bonding at the angle is most needed. The absence of access to the tank is an oversight common to "Veritas" and "Why Not." "Black Diamond" being the exception, for which we give him the credit due. "Veritas" does ventilate the water-tank, but no overflow is shown. The vertical lines of the buttress-like projections are windows enough, without emphasising the verticality further by the use of the two tall windows on each face, as here intended. A different treatment of the windows, and so set as to suggest a binding of the walls by a horizontal scheme of fenestration, or even a spiral arrangement, would have been an improvement subordinating the windows in either case to openings of much smaller proportions. The shaped weathering at the top of the buttresses would not be seen from the hill, and the gallery itself could only appear as a view from the distance. The general outline is good, and generally the scheme is commendable. The piers suggest the criticism that they display, as we have already intimated, more of a buttress treatment than piers schemed as weight-bearing erections. At the same time, it may be urged that columns often taper, and this batter shown by "Veritas" does improve the outline, and adds to the stability of the tower structurally. "Black Diamond" (device) is more consistent, but less graceful; more detailed in his working out, but less pleasing to the eye. This is partly due to his style of drawing. Of course, we should not actually see his domical roof unless we chanced to get on higher ground or stood a long way off. The evels by way of dormers are not an improvement; but the open pier-like method of design, as well as the recognition of the tank as part and parcel of the whole structure, must be acknowledged as being praiseworthy and well adapted to the object of the undertaking.

"Why Not" need not have put four doorways. The plinth suffers in appearance by having so slight a vertical finish. The doors look like mausoleum portals. The upper part suggests a pigeon-tower or columbarium connected with a crematorium. The drawing is excellent, and the outlook top turret of timbering is pretty enough. Ventilation is thought of, but not in a way that gives access to the water-bowl. The vertical piping is enmeshed suitably, and there is a wash-out waste provided. The design is not commendable from a structural standpoint. The walling in brick is wasteful, if the ferro-concrete

piers are intended to carry the tank, for which they look, however, rather inadequate as shown by the plan. If the brick is merely a facing only, the overhanging courses are a shame, pretending to do serious work, instead of being ineapable work and doubtful of their own upkeep. This shortcoming the section suggests plainly. The compressible brickwork has little affinity with the concrete rigid by king, and we doubt the stability of this sturdy-looking tower. We should not have placed it third but for the faults of those who follow on. The height is not great enough, and the necking seems to belong to a dumb rather than to a tower. The "X" has brick piers set out with projecting courses every foot or so, giving a rusticated look. Intervening arches of concrete span the spaces; but these might look rather thin, and the tower seems to want a rather stronger bearing at the bottom of the tank, which should have had an inverted bottom, so as to bring the weight towards the centre. There is no outlook gallery such as we bargained for. The sheet is not well arranged for illustration, which is an oversight of much importance. A good contrivance of the subject in this respect necessarily weighs with us, the general outline of this design is very meritorious. The consoles to the octagonal tank look better in the perspective than in the elevation. So slight a projection, however, could never cast such a long shadow as this view displays.

"Five Towns" sends quite a capitally arranged sheet which might have made an excellent illustration. His tower, if built, would look striking enough. The author is a clever fellow; but, for all that, we are sorry not to be able to do better for him than this, because the topmost enormous erection, with eight columns and figure stuary, would be out of place on top of an iron tank bolted in sections together round with hidden arched framing, thus surmounted with a pile of masonry or stucco building much too large and entirely out of keeping. The thorough way in which the plans show many details we have taken cognisance of, and we notice, too, now, the spectator would have to squeeze round in order to pass these columns and piers projecting into the outlook gallery so as to leave hardly any space to get by. The manhole into the tank is from this gallery, instead of a passage provided from off the spiral stairs. The dome would be quite lost in the sky. Indeed, the perspective only just indicates the tops of the circular dormers, which cut up the cupola, when one might get a chance of seeing it by being in an aeroplane or on the top of the hill.

"Briton" reminds us of the petrol tanks sometimes seen near motor works or taxi-cab runs. He subordinates everything to the tank, and four slight uprights, well furnished by steel bracings, look less than equal to the task which perhaps they are capable of undertaking in the mid of the circular stair shaft in the midst. The perspective is really the perspective, not even in horizontal perspective. Neither is it exactly a true elevation; but it is titrated up with impossible-looking surroundings, and stative of a level site backed by trees, still further sets the brick grotto work, suggestive of an embury sort of pleasure place. For an engineer's scheme, the awkward domed floor of the gallery outlook space is lacking in convenience, and we did not want to wander to the showy dressing from the roof and foot of the spiral staircase, which is very as here decorated with a dark domed roof to keep out leaves and birds, etc. The "Cheer Up" ornament round the bottom edge of the cement finished tank is not needed. Such a novel structure might well discard all outward decorative details such as this bookended ornament, made by the mule, and a poor sort of fussiness, too. The cyclist and holes in the dome are ugly, and would be badly on a sane man's roof as here shown. The tank is strongly delineated. We do not see that "Briton" is wrong in treating a water tower of the lines shown. We should prefer to see a style of thing personally; but

it is chiefly at fault owing to the way in which he has carried the idea out.

"Laver" is sturdy; if we are left to surmise, most much is to be in brickwork, and how much in concrete; in fact, but for the words "brick facing," we should have thought concrete was intended throughout. The tower is octagonal, and of the same area as the tank above, with caves at varied heights, and a massive belvedere on the summit of the sloping tiled roof, a lead-finished dome covering all. The big projections where the parapet is carried up on the cardinal faces would much obstruct the prospect seen in that direction, save for elevated and far distant objects. "Laver" has not risen to the occasion, which is a pity, and his tower looks squat and unimaginative.

"Theos" is in favour of a square tower, panelled out with gridded glazed windows, and an open outlook shelter at the top. The plastered body of the tower has much too poor a plinth, and a deep frieze, with an ungainly cornice; and yet, with all its defects, the scheme is not so bad-looking. The chief fault is due to its disregard for a truthful expression of what the tower is built for. The cornice and frieze go round the tank without regard to their position or structural exigencies and considerations. The tank is circular, and the tower is square, while in the section the big and massive cornice looks as if its weight had to be bolted on to the thin walls of the tank, which is carried over from pier to pier, and it is not made quite clear how. "Theos" marks the word "cantilever from each column," and there leaves the problem till after the contract is signed, and it is then the variations begin.

"Ne'er Do Well" is doing better. His perspective this time is quite the best of any submitted, and his scheme is pretty enough. The elevated brickwork above recalls the pigeon-house at Varengeville, where the Maison D'Ange stands, near Dieppe. That building is a delightful example, dated 1530-1542. "Ne'er Do Well" puts a circular top on a square tower, and corbels over, with four long-drawn-out segmental projections, which result in a great effort in a flat sort of way, and which run into herring-bone brickwork, where their horizontal corbelling courses would puzzle the bricklayer and make a lot of cutting, without ensuring strong work. Strength is what we most wanted in a water tower. The double conical roof, with the wide eaves make a pleasing variety of lines, the upper stage being justified by the introduction of an outlook gallery, to reach which the spectator has to run over the top dome of the tank constructed of iron set inside, the brick work being built round it, and never to be got out should it ever rust away and leak. The weights are worked out in figures at 13 tons to each super, foot of pier. The spiral stair looks to need stays, and we can get into the tank by way of a manhole. Then all is dark, with no ladder to get down by, and no ventilation.

"Benvenuto" sends a skeleton tower with landing stages open on all sides, and a very small stairway puncturing the tank and set out of the centre to reach a look-out place on the roof of the cistern. "Moroni" is somewhat similar in his scheme, the divisional knife-edged-looking supports being carried up by buttress fashion, but treated so as to look like wooden ballistics shaped on the outside face.

"Burgill Wallis" sticks to old methods, and submits a big brick tower, square below and circular above, with a lead dome, and a cave on one corner of the substructure. There is no belvedere, and the perspective is not a success. "Nil Desperandum" makes the tower outline look very like a saucerpan with the handle on top left standing on a lamp heater. The frame is of open work, and the iron tank gets no bearing below to help uphold it in position. "Vampire" is neat and practical; but we cannot call the design imposing or effective, panelled out like a tin tea caddy. "Cheer Up" is decorated with his overgrown scheme, and the perspective is wrong way out on the sheet.

The author has expended much thought and much care; but if he had taken the precaution to read the rules he would have observed that tinted shadows are not allowable. "Country Yokel" is practical enough, but has a poor idea of architectural fitness. The little columns faking up the angle piers are very incongruous, and so is the plan of the tank itself, enormously thick at the corners and excessively thin in the middle.

FORGERIES DETECTED BY ANALYSIS OF PIGMENTS.

Professor A. P. Laurie, of the Heriot-Watt College, Edinburgh, the newly-appointed Professor of Chemistry to the Royal Academy, lectured on Monday night on "Pigments: Old and New, Their Value in Detecting Forgeries," before the Royal Academy of Arts, Sir Edward Poynter, P.R.A., presiding. The history of art was said, Mr. Laurie, marked by the introduction of new pigments from time to time. The lecturer enumerated the list of pigments which were in use at the time of Pliny, and illustrated this part of the lecture with specimens of the minerals employed for the preparation of these pigments, the actual preparation of one or two before the audience, and rubbings of some of these pigments in oil. He then pointed out what pigments had been introduced in addition to these at various times in the history of art up to the present day, such as the discovery of the preparation of real ultramarine, the introduction of lakes prepared with alum, and the introduction in more recent times of such pigments as chrome yellow, cadmium yellow, artificial ultramarine, cobalt blue, and oxide of chromium green. By a close examination of minute portions of a picture they should be able to tell whether or not the work was a forgery, and very often the period at which it was painted. There were two or three methods of investigation. He himself had been experimenting with minute portions of a picture, and had found that a great deal could be done by performing a surgical operation on the canvas with a very delicate instrument. Having extracted the fragment, it could be mounted in paraffin, cut into sections, and examined under the microscope. By that method of investigation it was quite possible to identify the various pigments without doing the picture any serious injury. He could not help thinking that that line of inquiry might very well be followed up, as it would bring out some very interesting information as to the pigments used at various times in the history of art. So far as literary evidence went, there were many perfectly absurd and unworkable recipes, and only by actual experiment could one determine their composition. He was told by picture dealers that they doubted whether such methods could be of any value, because if the public believed that a picture was a Raphael, and if a man was willing to pay the price of a Raphael, that picture was a Raphael. That was, however, a different point of view. He thought, as a man of science, that he ought to go on, even if the results might be occasionally disastrous to some of the pictures in our great national collections. A systematic plan for the identification of blues when mixed with white lead was shown, and many micro-photographs on Lumiere plates of pigments magnified to 200 diameters. Micro-photographs of the pigments actually found on an illuminated missal letter of the 15th century were thrown on to the screen and the means of identifying them explained. The bearing of these experiments on fixing the date when a picture was painted was pointed out, and the value that such tests might be in determining whether a given picture was a recent forgery or not.

A Local Government Board inquiry has been held at Rutherford into an application of the corporation for sanction to a loan of £8,771 for the erection of working-class dwellings on land at Wakefield-road, Mill Green. The plans have been prepared by Mr. K. F. Campbell, the borough engineer.

CURRENTE CALAMO.

We do not know whether Mr. Clement Edwards, M.P., is right with reference to his "startling discovery" that the South Wales miners already have "the minimum daily wage" by the agreement of 1910. Very possibly. He was when, some years since, in the series of articles he did for us in the *Weekly Times* on Railway Nationalisation, he reminded us all that long years ago Parliament had anticipatively legalised that, and that all the Government needs to do is to exercise the powers then given to it. If he is right now, apparently all the law has to do is to enforce the 1910 agreement arrived at in South Wales. Some such happy issue will, we trust, avert the blow which threatens to paralyse our own great group of industries in common with the rest next week. One may also hope that all concerned will be quite sure this time what they do agree about! There are some of us who are beginning to distrust the diplomacy of Democracy, and to wonder whether, like that which shrouds itself in such mystery in the Foreign Offices of Europe, it rather welcomes complications and misunderstandings, which make good for the "conciliator's" trade, just as the Insurance Act seems to have created a new and well-paid army of explainers, lecturers, and commissioners!

Liverpool seems regarded as the nursing home of experts in town planning. The City Council decided on Wednesday to lend the city engineer, Mr. J. A. Brodie, to the Government of India for the purpose of assisting in laying out the new capital of India. A request for his services came from the Under-Secretary for India, through the Lord Mayor (the Earl of Derby), who gave instructions for a special council meeting to be held to consider the matter. Mr. Thomas Mawson, lecturer at Liverpool University on Landscape Design, has received a cable from the city of Vancouver, asking him to meet and advise them on a scheme for the development of the park system there, one of the most extensive of its kind in America. Mr. Mawson, who has recently been lecturing at Harvard, Toronto, Chicago, and Cornell Universities, is laying out the grounds for the new establishment of Dalhousie University, Halifax. Many public and private gardens in England have been designed by him, and his book, "Civic Art," is a standard work on town planning. Both invitations are more likely to secure good service than if extended to some of the more or less amateur enthusiasts who seem so ready to advise the world in general!

The latest advocated site for the projected new building for the University of London may be in a convenient district; but the subdivision of the structure into four blocks, intersected by cross-roads, will hardly facilitate architectural effect or convenience of communication. The land suggested lies east and west of British Museum-avenue, looking down it towards Torrington-square, and is intersected as well by Keppel-street. The first two blocks to the right and left, north of Montagu-place, contain each about 31,000 superficial feet, the block north-west of Keppel-street and the avenue 20,000ft., and the north-eastern block about 16,000ft. The area of the last-named block is a very irregular one, and will tax the architect's capability for planning whatever buildings he

is expected to get on to it. We are told that the Duke of Bedford has granted an option on the four sites till March 25, and the *Times* of Monday last appeals strongly for money to seize the "opportunity," insisting that "it is extraordinary how completely suitable the disposition of the land appears to be for the purposes required." We confess we do not see it. Our opinion is, what the University will save on the site—if it is going to save anything—it will spend on a building thus cut up into four isolated blocks, neither of which will lend itself to the best treatment, either of design or plan, economically or adequately.

The luck of some people is marvellous! We knew a man years ago who never paid Income-tax till he became a partner in the concern he had managed for years, although his name appeared prominently in connection therewith, and he was more than once interviewed by the local collector in regard to matters of dispute about the firm's assessment. Individuals may conceivably escape the knowledge of the tax and rate collector, but it is odd that wealthy corporations like the Inns of Courts should. Nevertheless, it has just been discovered that under the Union of Parishes Act, which made the Corporation the sole rate-collecting authority in the City, the Temples have paid no Poor Rate. Formerly the Guardians collected the rate. In the Bill promoted by the Corporation the Temples were included; but, as a result of negotiation, they were omitted from the Act. This escaped the notice of the Guardians, who were under the impression that the Temples were paying Poor Rate to the City authorities. Altogether over £13,000 is involved, the rate amounting to approximately £1,700 per half-year, and there being eight half-years' arrears due. A penny rate in the City amounts to £22,000, so that, according to the *Morning Post*, the citizens have paid over £d. in excess of their just proportion, while the Benchers of the Temples, presumably, have been waiting to be asked, with a patience that must commend itself to the admiration of every Englishman!

Mr. George P. Bankhart's thoughtful lecture last Wednesday at Edinburgh, of which we give an abstract and some illustrations on another page, was a simple, but excellent, condensed analysis of traditions, principles, and qualities essential in good plaster decoration, according to the nature and capabilities of the kind of plaster used in the various kinds of work. Mr. Bankhart believes that he holds the secret of successfully making and working the old white stucco material of the Italians who wrought by hand the famous ceilings of Inigo Jones's and Wren's time, such as Ashburnham House, Belton, Melton Constable, Groombridge, Bricksell, Acklam Hall, Helyrood Palace, Kilmahinham, and hosts of others. Certainly this art seems to have died a natural death just previous to the advent of the Bros. Adam's work. But the ceilings have been sources of inspiration to architects during the last eighty years for reproductions by processes which, to say the least, cannot compare with the splendid old stucco ceilings. Mr. Bankhart claims that he is now making the identical material, and that he is executing in the traditional manner the first ceilings done in that manner and material after a lapse of two hundred years. His patient research and long experience abundantly entitle him to a hearing.

A, B, and C all have telephones in their houses in Liverpool. A is leaving Liverpool; B is moving to A's house; C is moving to B's house; D is moving to C's house. B, C, and D all want telephones, and suggest to the telephone authorities that the instruments should all remain as they are. But this does not suit the authorities. A's must be taken away; B's must be moved to A's house, by which B must pay £2 5s.; C's must be moved to B's house, at a similar cost to C; and so on. B has offered to pay the £2 5s. if the telephones can be left as they are; but even this proposal is refused. Surely, remarks the *Liverpool Post*, some reform is needed in telephone management. And elsewhere, we think! Perhaps the work in that department is slack, and it is necessary to make jobs? Evidently it is not in other departments, judging by the time it takes to send receipts for money paid. We paid the usual yearly registration fees for our papers on Sept. 13, 1911, and the official receipts reached us on Tuesday last! This, by the way, after an official inquiry whether we wished one of them registered as being published at our present offices, where we have been eighteen months.

Several letters, for which we have no space, have reached us, commenting on our expressed belief in this column last week that house-building is in arrear in many towns, and that investment in house property is reviving. One writer contends that builders are asleep, another that the local authorities are idle, and another that local authorities have killed private enterprise by saddling ratepayers with expensive dwellings schemes. We fancy all three allegations are exaggerations. Anyhow, we are glad to note that on Tuesday, at a meeting of the Rugby Urban Council, a report presented from the plans and estates (joint) committee on the question of the need of cheap dwelling-houses in the town, the committee expressed themselves as quite satisfied that there did exist a serious demand for houses for the working classes in Rugby which at the present time was not being met by private effort. The committee further reported that they had been successful in using their influence in securing the consent of the representative of one of the owners of suitable sites—viz., the Rector of Rugby, to agree to recommend to his authorities the sale of part of the Rugby glebe at a price at which a private investor had expressed his willingness to purchase with a view to building. The site referred to is within convenient reach of the B.T.H. Works—on the north side of Craven-road—and is now used as garden ground. It contains about 28,100 square yards, and is considered sufficient for the erection of approximately 185 houses, to be let at from 5s. 6d. to 7s. 6d. per week. Rather than embark the council on extensive building responsibilities, the committee (whose report was adopted) recommended that they should continue their negotiations towards carrying out this arrangement. That, at any rate, is very proper action for a local authority to pursue, and we hope it will have a good response.

While we think there is no doubt about the better tendency of things generally in connection with the building trades here at home, it is, as yet, nothing like that which is finding such vigorous expansion elsewhere. In Japan and in Australia especially the activity is really remarkable. Several years in suc-

sion we have mentioned with gratification the large increases in the numbers of our Japanese subscribers, and this year the additions have been really surprisingly numerous. In Australia in New South Wales more especially—trade seems to be booming, and the considerable demand, more particularly in Sydney, for the *BUILDING NEWS* has induced us to open up relations with a well-known firm of printers and publishers there who will in future represent us and receive subscriptions. It is pleasant to us to note this, and to know that many of our advertisers are obtaining a publicity which cannot but be beneficial to them, and helpful to English trade generally.

ARCHITECTS FROM GEORGE IV. TO GEORGE V.

By MAURICE B. ADAMS, F.R.I.B.A.

(Continued from page 230.)

Everyone knows what an excellent draughtsman Welby Pugin was; but those who are not familiar with the drawing in Perry's life of this great architect may not remember that at so early an age as thirteen Pugin made a first-rate sketch of Christ Church Priory, realising the architecture of that remarkable building fully expressed. A bird's-eye view of the church and convent at Ramsgate is included in the Pene Spiers's collection of historic drawings hung in the Victoria and Albert Museum.

While Pugin was busy in 1837 with the drawings of the new palace at Westminster, "in the composition of the river front," the centre wings, and tower, he was engaged in erecting St. Mary's College, Ossett, and Seagrass Hall. Simultaneous entries in his diary show this beyond question. His first church was at Ossett, at Ossett.

Sir George Gilbert Scott, at the outset of his career, erected many workhouses and suitable buildings, and other Gothic celebrities, like S. W. Dawkes, who had erected Coney Hatch, and Benjamin Ferrey, who built Dorset County Hospital in 1839. Scott was articled to Edmeston in 1827, and in 1834 helped Kemphorne, an expert in workhouse projects, after serving a time with the builders, Peto and Grissell. Scott's connection with Moffatt, began in 1835, after which the firm went in seriously for Poor-law enterprises, and carried competitions before them with businesslike foresight in such a way as to obscure some other considerations. Influenced by Storey's "Cathedrals," which came out in 1844, Scott turned his attention subsequently to Medieval work, and the Cambridge Camden Society woke up matters in favour of Ecclesiology, which was inspired largely by Pugin. Curious to relate, Gilbert Scott obtained his first church, St. Mary's, Southfleet, through his connection with the Poor Law Commissioners.

Scott characteristically went into win, and so adopted a popular style, as at St. Mary's, Wakefield, and he won much favour by his capable church of St. Giles, at Camberwell (1841); also by securing by competition Hamburg Cathedral in 1844, on which design he had the help of Cue and Street. Scott obtained the surveyship of Westminster Abbey, when Blore retired in 1839. The chapter house was restored by Scott, who took it to a north porch.

The church of St. George and St. Julian, Colindale, in Whitehall, was taken part in by 215 other architects, and I have already mentioned how Scott was chosen, and how he was severely, but I did not say that Sir George Wyatt's work was confined to the interior of the India Office, the entrance of some rooms, badly fitting the exterior, the porch of the entrance is extremely severe. It is impossible in a paper of this kind to do justice to such a person as Sir Gilbert Scott. His work was everywhere, and his capabilities such as

would have made him distinguished in any age.

The professional societies of architects must not be overlooked. The first dates from 1806, with John Woods, architect, of George Yard, Lombard street, as president. James Savage and James Elmes were the vice-presidents. Mr. Hordley being secretary. Every member was expected annually to present an essay on a subject connected with civil architecture, or forfeit half a guinea. Fines and papers belonged to this London Architectural Society. The subscription was £2 2s. a year.

The Royal Institute of British Architects was constituted in 1835, and incorporated in 1837. Earl de Grey was the first President, Professor Donaldson and John Goldie were his hon. secretaries. Its name may have been briefly stated. On January 8, 1834, a meeting took place in Freemasons' Tavern of architects and surveyors to found an architectural institution. Mr. Elmes took the chair at a subsequent meeting on the 13th of the same month, when it was agreed to term the institution "The Society of British Architects." An amendment terming the body "The Wrennian Society" was negatived, the proposal being objected to on the ground of its restriction on the extremely limited size of the gathering. In 1835 "The Architectural Society," instituted in 1831, only numbered fifty-one members at 37, Lincoln's Inn. Mr. Bernard Clarke was the President. In 1838-9 Sir William Tite was President, and Richard Halliwell hon. secretary. J. A. Bell in 1831 published a letter addressed to Lord Farnborough, the eminent authority on Parliamentary procedure, urging the need of a chartered society. The Society of Architects and Surveyors, the Society of British Architects formed a coalition in 1842.

William Butterfield is first found recorded as a student member of the Society of Architects in 1831 at the age of seventeen; but he joined no professional body after, and only agreed to accept the Royal Gold Medal of the Institute in 1881 by deputy. His influence was considerable and his work masterly. The College of St. Augustine at Canterbury, built in 1815 at the cost of Mr. Poynders Home, was his first important building. All Saints Church and Clergy House, Margaret-street, five years later, revealed the possibilities of brick and created much controversy. St. Matthias, Stoke Newington; Balliol College Chapel, Oxford; which some vandal wanted to pull down last year, and St. Alban's Church and Clergy House, Holborn, 1858, displayed his genius. St. George, Oxford, was built in 1867. Not one of Butterfield's contemporaries evinced more originality or less regard for convention. He invented the "streaky-bacon style" of partly-coloured brickwork.

John Loughborough Pearson, R.A., also of a retiring temperament, was equally original, and produced buildings unsurpassed by any man of his time. The spire of his first London church, Holy Trinity, Bessemer Gardens, 1852, is a most beautiful structure seen from any point of view, and St. Peter's, Vauxhall, the first modern church vaulted throughout in brick and stone, 1854, set an example for many others to follow. St. Augustine's, Kilburn; St. John the Evangelist, Red Lion square; St. Michael's, Craydon; St. Agnes, Liverpool; St. Matthew's, Northampton; and St. Stephen's, Bournemouth, as well as Holy Trinity Church, not to mention Truro Cathedral, suffice to distinguish Pearson's master of the first degree, combining a study of Continental work with a recognition of English tradition, and as a church-builder fully realising the requirements of a modern church.

J. P. St Aubyn was among the first English architects of the Gothic revival to emphasise the importance of local modes and textures in his church work in Cornwall, best studied in this way. It is a matter of regret that he did not return more of the historic old screen work and wood fittings in some of the churches he repaired.

The series of churches built by James Brooks rose to the level of high distinction, and I only regret that space precludes a full

description of his architectural achievements, his starting patrons being Richard Foster and Robert Brett for the churches which he built in East London—St. Michael's, Shore-ditch; St. Chad's, Haggerston; and St. Edmund's, Kingsland-road—during the sixties. The Hospital of St. Mary at the Cross, Shore-ditch, and St. Saviour's, Hoxton; St. Andrew's, Plaistow; and St. Mary's, Hornsey, in which church Brooks tried his hand at the last phase of Gothic—the Perpendicular.

G. F. Bodley, R.A., stamped everything which he did with the utmost refinement and distinction, as well as much originality, when some have given no period of architecture. St. Michael's, Brighton; All Saints's, Cambridge; the Church of the Holy Angels, Hoar Cross; St. Augustine's, Pendlebury; St. Mary's, Clumber; St. John's, Cowley, Oxford; St. Edward's, Holbeck; and Holy Trinity, Kensington, give an abstract of several remarkable examples of beauty and reserved power. Dover House, Chelsea; the School Board Offices on the Embankment, Christ Church Buildings and St. Swithun's, Quadrangle, Magdalen College, Oxford; additions to King's and Queen's Colleges, Cambridge, and Washington Cathedral must suffice. His character was as charming as his work, and no one had a wider experience in perfecting design in the applied arts. Part of the work mentioned was done, of course, in conjunction with Thomas Garner. His reveries at King's Lynn is only one of similar errors of his skill. When he was elected A.R.A. he told me his works sent to the R.A. for exhibition were refused by the Council because they said his share of the designs must pass without question, and Mr. Garner's share of them must be judged. This absurd contention much amused Bodley.

William Burges joined H. Clutton in a competition for Little Cathedral in 1856, which they won. Street took the second prize, and he said Burges was so familiar with French prejudice that he had taken the precaution to use French paper, and as Street thought, thereby obtained undue advantage. The drawings, anyhow, were so quaintly executed that Viollet Le Due at first believed, when he visited the exhibition of the competitive designs, that Burges's drawings were some old ones of the thirteenth century, till he discovered "Whatman's" water mark in the paper. Either Street or Viollet Le Due was wrong. The designs of William Burges were always thorough, including the most minute detail. Cork Cathedral, his churches at Skelton and Studley Royal, near Ripon; Cardiff Castle, St. Faith's, Stoke Newington; St. Stephen's, Harrow, are among the best. His design for the Law Courts was architecturally by far the best. The scheme which he made for decorating St. Paul's Cathedral by a veneer of marble was shown at the Royal Academy in 1873.

E. W. Godwin, F.S.A., like his personal friend, William Burges, imported French Gothic mannerisms, and exercised a great influence on his fellows, though considering his genius, Godwin's career individually was largely a failure due to his own personal shortcomings. Congleton and Northampton Town Halls, Bromore Castle, and Glenhagh Towers, some work at Canon's Ashby for the Marquis of Northampton are his designs. He won the first competition for the Town Hall at Leicester, and built Whistler's house at Chelsea, and the Bedford Park. Godwin created a style of his own and took up Japanese art with ability. As a writer of literary accomplishment, and as an authority on costume and dramatic staging, he was unsurpassed.

George Edmund Street, R.A., the builder of the Law Courts, was in every sense a great architect. His books on Spain and Italy's architecture, and his work in marble display delightful industry and a discriminating incisive style. Bristol and Christ Church Cathedrals were partly rebuilt by him, and he told me that when the Dublin work was in hand a detail for the entrance arch was asked for. He drew it out on the spot, full size. As the structure proceeded a fragment of the old arch was subsequently found which

proved to be identical with the profile he had supplied, so scholarly was Street's knowledge. His design for Edinburgh Cathedral was an excellent performance, a remark which applies to his fine churches at Kennington, East Dulwich, Clifton, Clifton, Bournemouth, and Oxford; also St. James the Less, Westminster, and the convent at East Grinstead. Like Barry and Scott, Street was buried in Westminster Abbey. Bodley designed the brass over his grave.

I must be content to merely name some of the most able church architects of their day. John Prieland, Wm. White, R. J. Johnson, J. Hutton, J. S. Fowler, M. E. Hildell, George Goldie, E. G. Paley, Archibald Dunn, and S. S. Teulon. John P. Seddon, at one time Hon. Sec. of the Institute, did good work during the sixties, and John Douglas, neglected by the Royal Academy.

George Gilbert Scott, Junr., as he was called, erected St. Agnes, Newington, in 1877, and All Hallows, Southwark, some years later, realising the poetry and efficiency of ecclesiastical work of a plain, kind in brick for the purposes of town churches and advanced Anglican worship. J. D. Sedding's two London churches, Holy Trinity, Sloane-street, and that of the Holy Redeemer, Clerkwell, are exceedingly clever and well contrived, though so different, showing a duality of mind and versatile taste, therefore somewhat disappointing. Sedding usually made his sketches in a green-covered ledger-like book, and one day, out with him and a few companions, someone said as we walked along a country road, "What a curious book Sedding was using." "Not at all," ejaculated Sir Thomas Drew, "for he invariably designs and draws on the principle of 'Double Entry.'"

J. F. Bentley's smaller churches were very charming, and his Cathedral at Westminster will hand his name down to posterity, though it is doubtful if it will ever look so grand inside as now in the undecorated plain carcass state with the brick joints to give it scale. His seminary of St. Thomas at Hammersmith, though so plain, is a greater success than his florid college near Windsor. St. Martin's Church, in the Lewes-road, Brighton, erected about 1876 by Mr. Somers Clarke, F.S.A., possesses many sterling qualities. It is hopeless to try to even mention more than these, for I am taxing your patience, but Mr. Wm. Niven's church at Teddington, and A. H. Skipworth's church of St. Etheldreda, Fulham, some by Hodson Fowler, of Durham, and others by Mr. Temple Moore, Mr. Cecil Hare, Sir Clras. Nicholson, and Mr. W. Tapper, are works pointing to posterity. To the list of architects, also his completion of the Duke of Norfolk's great church at Norwich must be named. Of course, the noble cathedral at Liverpool, now being built by his nephew, Mr. G. Gilbert Scott, is more important, and the Lady Chapel has already been completed.

Briefly let us turn to Civic Buildings, in which the famous Town Halls of Leeds and Hull, by Cuthbert Broderick, and the Town Hall, by Cuthbert Broderick, to the mind for their classic merit, which also marks John Burnett's works in Glasgow, with many others of no small ability in Scotland, as at Aberdeen and Edinburgh. Greek Thomson, too, had his admirers, though his work leaves me cold. Banks and Barry's buildings, forming the quadrangle in front of the Royal Academy, and the Palladian buildings at its rear for London University, by Sir James Pennethorne, erected in 1848. The City Liberal Club, by Mr. G. E. Grayson, a few years later. David Bryce erected the Bank of Scotland, and J. Dick Peddie's work we recall with praise; also E. M. Barry will not be overlooked, though if skeletons in cupboards must come out, it appears from all accounts that there is a ghost who designs the well-known schools of the "top of Endell-street," for which E. M. B. got the credit and no small praise, for it is an uncommonly clever work. Alfred Waterhouse, R.A., of stupendous practice, was no sooner out of his articles than he won the Assize Courts at Manchester. Edmund Sharpe told me that Waterhouse had acknowledged to him how useful he had found the books of classified mouldings published by Sharpe, for, said he,

"I was in the thick of my business before I was really ready." The planning of Manchester Town Hall demonstrated the unequalled skill of Waterhouse as a planner, and as a water colourist, was graphically shown in the excellent buildings all over the Kingdom speak of him as an architect, and the Natural History Museum, if hard in material texture and not very happy in its colour, is not put out of countenance by its newer neighbours.

George Corson, of Leeds, born the same year as Waterhouse, worked on the same modern lines with ability. Here we must come to a line on "Victorian Harris," whose efforts, which won him this name, were by no means so trivial as some said they were. Bassett Keeling made a stir when he startled folk with his Strand Music Hall front, for that was florid and vulgar enough; whereas Thomas Harris, who built Saltaire, and another mansion at Stokesay, was an accomplished architect. The best Victorian brick building of the civic sort were called "Queen Anne," and the schools designed by John J. Stevenson in conjunction with Mr. E. R. Robson, were admirably refined and clever. Mr. Basil Champneys, Mr. Philip Webb, Eden Newfield, Richard Coad, George Devey, Mr. Ernest George, and Mr. Norman Shaw all did work in this way which has not been surpassed for originality and charm. The new Scotland Yard, by Mr. Norman Shaw, and the new Criminal Chambers, in the City, are second to none in their way, and the Rylands Library at Manchester, by Mr. Basil Champneys, deserves warm praise, though I may be exceeding the rule I laid down at the outset in saying so. The Imperial Institute and Lloyd's new buildings in the City, Wakefield Town Hall, and other conspicuous buildings are associated with Mr. T. E. Gordon. Verity and his connection with the Albert Hall. I must refer you to my list for some other civic buildings, such as the University and Collegiate work at Oxford and Cambridge, Newcastle, Hampstead, Lancing, Rokeham, and Rugby, Eton, Horsham, Birmingham, Dartmouth, Bangor, and Aberdeen. Town Halls at Bradford, Plymouth, Belfast, Woolwich, Sheffield, Lancaster, Colchester, Cardiff, and Stockport, and Municipal Buildings at Chelsea, Oxford, Glasgow, West Ham, Walsall, and Crewe. Public Libraries and Polytechnics all over England, Holborn Viaduct, and the Thames Embankment. The Regent-street improvement, the Mall processional road, Victoria and Albert Museum, the War Office, Admiralty Buildings, Charing Cross, Wesleyan Memorial Hall, and St. Stephen's Hall, are such in our minds. The Office of the Woods and Forests in Whitehall scales better with Inigo Jones' Banqueting Hall than any of its neighbours.

English and Scottish domestic work has exceeded in merit all foreign competition, and it bids fair to reach a more general application as men learn to omit senseless detail and elaboration, depending instead more on the choice of material and proportion; for the Gothic spirit must be retained to keep it virile and adapted to modern requirements and domestic comfort. "It is for homely features to keep home."—(Milton).

No retrospect of the past century can reasonably be complete without some reference to the vexed question of restoration, which, with all its disastrous results, was carried out in the early Victorian period with far too big a letter R; it destroyed much that was historically valuable and artistically beautiful by well-meaning enthusiasts who scraped and spoiled many a noble building at enormous expense without recognising the value of architecture and her handmaidens in craftsmanship. We are all agreed about that, and now no capable architect would do anything, let us hope, of the sort we deplore.

The South Manchester Board of Guardians at their meeting on Friday, Mr. G. Macfarlane in the chair, decided after discussion to adopt the recent proposal for the establishment of a joint children's hospital for the Manchester and South Manchester Poor Law Unions. The building will contain 500 beds, and is estimated to cost about £150 a bed, or a total outlay of £75,000.

PROFESSIONAL AND TRADE SOCIETIES.

BRISTOL SOCIETY OF ARCHITECTS.

Mr. Arthur S. Jennings, editor of *The Decorator*, gave a lecture to the members of this society on Monday on "House-painting and Painting," the Special Reference being to "Poisonous Pigments." Mr. Foster Wood presided. Mr. Jennings said house-painting had hitherto been looked upon as being of quite a simple matter, but it was now recognised that it was a very important, and indeed complex, matter, and required not only specialist knowledge of the materials and application to the materials, but also a knowledge of chemistry and other matters enter into the question. The builder of the Tay Bridge was once asked how long his work would last. His reply was, "As long as it is painted." As a matter of fact the bridge was being painted from year's end to year's end, and 300 tons of paint were used up annually. The preservative value of paint could not be over-estimated. If a building was painted with good paint it would last; if not so protected, the material would more or less rapidly decay. Hence paint and painting had been likened to an insurance tax and not an inconsiderable one. Some short-sighted owners of property neglected to paint as frequently as was necessary, and the result was that a permanent condition of decay was started which could not be arrested. The speaker referred to the use of paints, the influence of driers, and the tinting of colours. With regard to the use of white lead, he pointed out that although its poisonous character was only now becoming fully recognised in this country, in various places abroad there had been an agitation going on against it for years, and its use was now prohibited in France. The painter was subject to the effects of lead-poisoning, through contact with the skin, through inhaling fumes in burning off old paint, and by the dust which arose in rubbing off old paint prior to putting on new. He urged that white lead should be replaced by leadless paint, its pigment, emphasising in particular the value of zinc oxide in this connection. This product was not a modern affair; it was used in quite ancient times, and was in great demand on the Continent. He commented upon the lack of knowledge of the right way to use zinc oxide, explained the process, and urged that, from an economical point of view, though the initial cost was more, there were compensating advantages in durability and spreading capacity. Another recommendation for its use was the absence of odour as compared with paint in which white-lead was used. Allusion was also made to another non-poisonous pigment—lithopone. An interesting discussion followed, in the course of which Mr. Jones, who said he represented an old local firm who manufactured white-lead, stated that if he had known that the speaker was going so exhaustively into the question, he would have come prepared to show that white-lead, their old friend, had not suddenly turned round and become a new enemy.

GLASGOW INSTITUTE OF ARCHITECTS AND ARCHITECTURAL COMPOSITIONS.

The quarterly meeting of the Glasgow Institute of Architects was held on Wednesday week, Mr. John B. Wilson, F.R.I.B.A., president, in the chair. The council had had under consideration the proposal that the extension of the municipal buildings, already decided to allow the surveying engineers' department, and a letter had been forwarded to the corporation protesting against that proposal. The council noted with satisfaction that the corporation had remitted the matter back to the committee for reconsideration. A full report was made regarding the steps taken by the council for amendment of the conditions of the Finner School competition. The meeting approved of the action of the council in prohibiting members of the institute from taking part in the competition, in view of the m-s-factory results of the negotiations with that board. It was pointed out that the R.I.B.A.

and the Edinburgh Architectural Association had also placed an embargo on the competition. There was submitted to the meeting a resolution passed by the council, in terms of the articles recently adopted by the institute, for the better regulation of competition by debarring its members from engaging in competitions the conditions of which are considered unsatisfactory. The resolution, which was approved by the meeting, defined what is to be regarded as professional misconduct on the part of any member.

THE LONDON ASSOCIATION OF MASTER DECORATORS. A meeting of the general committee was held at 32, Queen Victoria-street, on February 12. Mr. C. E. Wilkinson in the chair. Present: Mr. John Anderson, Mr. G. Colley, Mr. E. Dakin, Mr. John Milton, Mr. E. S. Rowden, and Mr. Alexander Davidson (secretary). The committee proceeded to the consideration of the publication of the revised report of the Educational Committee, in conjunction with letters from the London County Council appointing a day for receiving a deputation. The committee next proceeded to consider the desirability of urging local bodies, as a means of relieving distress and meeting trade conditions, to arrange their painting and decorating contracts at times when business was slack and, in consequence, much unemployment existed. The committee next considered the subject of adopting a discharge certificate in connection with the trade. The idea was a certificate, which the workman could carry, containing particulars of his various employments, the length of time such employment was held, etc. It was agreed that the general meeting should be held on March 25, and that the following items should appear on the agenda: (1) Action to be taken with reference to the Insurance Bill; (2) report of the Educational Committee and the deputation to the London County Council; (3) to discuss the issue of certificates of employment and discharge.

MANCHESTER SOCIETY OF ARCHITECTS.—On Wednesday, February 14, Mr. A. N. Paterson read a paper entitled "Scottish Architecture, Ecclesiastical and Domestic, 15th to 17th Centuries." In tracing the history of the early development of Gothic art in Scotland, he showed how till the 15th century Scotland followed in the wake of the general traditions of building in England; that then, when England had passed to the Perpendicular period of flat-topped arches, fan vaultings, and vertical windows, Scotland, severed from English influence by the war, developed an architectural character of her own. This she maintained for the two following centuries; but it was to France, rather than England, that she turned for friendship and inspiration. The time for the building of churches had now passed away, and Mr. Paterson showed, with some excellent slides, the development of the country house from the peel tower and castle. A vote of thanks was proposed by Professor Camper, and seconded by Mr. Hewitt, and heartily carried.

QUANTITY SURVEYORS' ASSOCIATION.—An extraordinary general meeting of the members of this association was held on Monday evening last at Caxton House, Westminster, S.W., at which the following by-law was adopted: "No member or associate of the association shall prepare bills of quantities for less than the schedule of charges recommended by the association for adoption by public authorities, excepting only in cases where a public authority may have already issued a special scale of charges for their particular work. No member or associate shall, under any circumstances, work for the said authority for a lower remuneration than this special scale." "Any member or associate of the association who shall act in contravention of this by-law shall be considered guilty of conduct prejudicially affecting the reputation of the association, and shall be dealt with by the council as provided in Clause 29 of the articles of association." "It shall be the duty of the members or asso-

ciates of the association to acquaint the council, through the secretary, of the existence of any scale of charges issued by any public body which stipulates lower rates of charges than those recommended by the association, in order that the council may communicate with the public body in question, with the view of endeavouring to prevail upon such public body to make their scale conform with that of the association."

YORK AND YORKSHIRE ARCHITECTURAL SOCIETY.—An interesting lecture was delivered on the 14th inst. before the above society on "The Work and Life of Michele San Micheli," by Mr. J. Stuart Byrne, Lic.R.I.B.A., the president, Mr. A. B. Burleigh, Lic.R.I.B.A., being in the chair. A study of the life of San Micheli is interesting, not only on account of the distinctive qualities of his work, but also on account of his position in perhaps the most important period of the Italian Renaissance. Born in 1484, the son of an architect, brought up in an architectural atmosphere, sent to Rome at the age of sixteen to study for his profession, it is not surprising that he developed into an architect *par excellence*, in contradistinction to some of the other masters who bestowed part of their energies on the other arts of sculpture and painting. Not to compare that his work appears to have certain architectural qualities lacking to some extent in the works of some of his contemporaries. The most famous architect practising during San Micheli's youth was Bramante, who was engaged during the early part of it in Lombardy, not so very far from Verona, and during the later years in Rome. In fact, the youth and the master went to Rome about the same time—namely, about the year 1500—Bramante to engage in the work of the Cancelleria and Giraud palaces, and the youth, we can hardly doubt, to seek inspiration equally from new and old work—the practice, then, as it is to-day. We need be pardoned, therefore, for supposing that San Micheli came under Bramante's influence, and there is something to support this in the similarity of the façades of the churches of Santa Maria in Organa at Verona, and San Sisto at Milan, not to mention other points of similarity in various window and other details. San Micheli's greatest claim to fame arises out of his military architecture. His first direct connection with such work appears to have occurred when he was about thirty years of age, and within a few years he had effected a revolution in the design of the bastion fortification, the importance of which entitled him to rank with Vauban among the greatest of military engineers of all time. This work was the invention of a new type of bastion, whose front was angular, the apex towards the attack, and the subtending sides, when produced, cutting the line of the curtain outside the bastion, and at points more or less remote from it, as circumstances directed. The new arrangement permitted the faces of the bastion to be completely swept by fire from the curtain, and also to some extent from the adjoining bastions. This was impossible with the square and circular designs in use previously, and combined with other new features and designs presented, was of enormous advantage to the defence. It should be pointed out that Viollet le-Duc has disputed San Micheli's claim to this honour in favour of some unknown French engineer; but his evidence is by no means conclusive. San Micheli seems to have been engaged almost exclusively in fortification work for a number of years, and there can be little doubt that this experience, which involved a careful consideration of questions of utility and sound construction, greatly influenced him when called upon to design works of a more decorative and architectural character. Two of his finest buildings are the Porta Nuova and Porto del Palio at Verona, both designed with remarkable simplicity and directness. He also designed, amongst other work four fine palaces in Verona, of which the Pompen and Bevilacqua

are the most notable, and the Grimani Palace at Venice, the perfection of whose lower story is somewhat marred by the faulty proportion of the upper stages, for which it is possible that San Micheli was not responsible. He made several designs for churches; but, unfortunately, few of them were carried into execution, and even those were not completed in the author's lifetime. As a designer he was gifted with considerable facility, which he exercised with the greatest refinement and restraint. His work, while sound both constructionally and artistically, is never dull, and does not lack originality. If we may believe Vasari, the character of the man was in keeping with his work, and would justify one in regarding the study of his life and art as well worthy the attention of the thoughtful members of his profession. At the conclusion of the lecture a hearty vote of thanks was proposed by Mr. G. W. Milburn, seconded by Mr. A. Cowman, Lic.R.I.B.A. The following officers for the present session have been elected: President, Mr. A. B. Burleigh, Lic.R.I.B.A.; vice-presidents, Mr. T. W. Whipp, A.R.I.B.A., and Mr. J. H. Rutherford, Lic.R.I.B.A.; hon. treasurer, Mr. J. D. White, Lic.R.I.B.A.; hon. librarian, Mr. E. R. Tate, Lic.R.I.B.A.; hon. secretary, Mr. Harold E. Henderson, Lic.R.I.B.A.; assistant hon. secretary, Mr. J. M. Andrew; members of council, Messrs. A. E. Munby, A.R.I.B.A., S. R. Kirby, Lic.R.I.B.A., F. Dyer, K. Ward, Lic.R.I.B.A., and J. M. Andrew. The prizes for the best set of measured drawings have been awarded by the assessor, Mr. E. Munby, M.A., A.R.I.B.A., to—first, Mr. C. Leconly, and second, equally divided between Mr. D. Merrell and Mr. C. W. C. Needham.

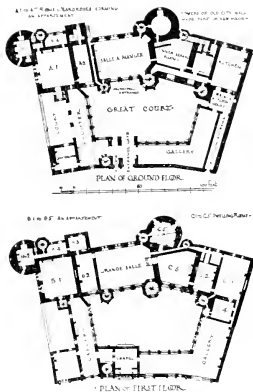
Our Illustrations.

HOTEL DE JACQUES CŒUR, BOURGES.

Commenced in 1433 by Charles VII.'s Finance Minister, Jacques Cœur, the famous silversmith, this well-known French mansion forms one of the most remarkable specimens of Domestic architecture of its time still standing almost intact in France. Bourges possesses other houses, such as the Hotel Cujas and those in the Rue des Toiles, including a beautiful stone-built house of the 15th century. There is also the convent of the *Annonciades*, where Louis XI.'s innocent and discarded wife died after six years' repudiation. The Hotel Alemaut, an example of Early Renaissance, has an interesting courtyard; but Jacques Cœur's house is the glory of Bourges, having been built by its most magnificent citizen, whose fortune had been the prop of his king and country. Charged with murder by Jeanne de Vendôme, wife of one of his principal creditors, his victim was said to have been Agnes Sorel, mistress of Charles VII., and thus, inspired by jealousy, the ungrateful monarch was induced to permit the wholesale robbery of Jacques's property and the arrest of his person, and, worse still, to condemn his condemnation in the face of a triumphant refutation of the crime for which the King and his new favourites had Jacques ruined, in spite of his proved innocence. Jacques's life was, however, spared, though his wealth was confiscated when he was banished. He died in the Isle of Chios just after public opinion had secured his pardon being proclaimed. Such was the builder and the story connected with this famous building, of which we give a view today contributed by Mr. A. C. Fare of Messrs. Fare and Canon, and the plans here drawn will show the shape, quaintness, and extent of this "hotel." Its facade is surpassingly rich, with Flamboyant friezes, its tourelles, tall roofs, and cloister-like galleries, the right-hand one being occupied usually by the poor who daily came for charity and food at the hands of the master. The niche under a canopy over the entrance

at one time was occupied by an equestrian statue of Charles VII. The figures looking out from the side niches are supposed to represent "in and 'er," as the man-in-the-street in England would say, meaning Jacques and his wife, Hearts and pilgrims' cockle-shells, with the device of the sire of St. Fargeau (of whom the site was bought), form the subjects of many carvings below the windows and elsewhere. On the left of the portal, inside, to the right, is the exquisite little portico of the staircase leading to the chapel (seen on the first-floor plan), which is decorated with ecclesiastical relief preparing for various religious ceremonies. This staircase was available for the use of the public to the chapel, with its large traceried window over the portal. The accompanying view illustrates the "courtyard, with the open

benefactor, and never ceased till they had brought about his ruin. They are forgotten and are unrecorded; but Jacques Cour's name is familiar wherever architecture is appreciated and studied.—The "Cathedral of St. Etienne at Bourges is too well known to be more than mentioned as one of the most beautiful in the whole of France. It was commenced early in the 13th century, and was consecrated in 1324. Its incomparable west front, with five deeply-recessed portals, is most elaborately sculptured,



Though one of the shortest cathedrals in France, the interior appears one of the longest, owing to the fact that the central aisle is unbroken, and likewise there are no transepts to interfere with the continuity of line which in this church particularly adds to its most majestic appearance. Two aisles run on each side, and continue round the apsidal choir. Above the enormously lofty pier-arches of the nave is a well-developed triforium and a large clerestory. The lower apsidal aisle is radiating chapels, crowned with spires, most ingeniously supported by piers, brackets, shafts, and masses of masonry. In Nesfield's "Specimens of Mediæval Architecture," the "Ancient Hotel de Ville" at Bourges is illustrated by a sketch of the entrance-tower, and a capital study is also given of the beautiful fireplace in the hall, with a doorway adjacent to it, excellently chosen, and particularly well drawn. In Mr. Norman Shaw's "Architectural Sketches on the Continent," the front elevation and a view of the courtyard will be found of Jacques Cour's House.

THE NEW YORK PUBLIC LIBRARY.

The New York Public Library is built on the site of the old reservoir between Fortieth and Forty-second streets and Fifth and Sixth avenues. The City of New York gave the site and erected the building, which cost about six million dollars. The maintenance and books are provided for by the library trustees. The library trustees held an open competition. From this competition the authors of the six best designs were chosen, and to these six architects six others were added on account of their reputation. The final competition was judged by a jury made up of three New York architects, the three trustees of the library, and the director of the library. The design of Messrs. Carrère and Hastings, of 28, East Forty-first street, New York, was selected, and the City employed them as architects for the building. For the convenience of all concerned, the

building work was divided into contracts as follows: 1. Removal of old reservoir structure from the library site, and the consequent foundations for the building upon flagging contract for the entire substructure, complete as to the exterior, but without interior masonry, and not including the approach work. The material selected for the exterior was white marble—that is, marble of white mass with a slight amount of clouding or marking—and the final selection was of marble from Dorset, Vermont. The walls throughout are of solid masonry, no steel columns being used. Floor and roof construction are of steel beams, with filling between the hollow terra-cotta arches, all steel being enclosed in heavy fireproofing. The organization for supervision of the work included an architect's superintendent on the site, assisted by two inspectors, appointed and paid by the City; the architect's superintendent of stonework, who was on duty alternately at the quarry and the cutting-sheds, and the general supervision given by the architects, whose office is near the work. The City retained a consulting engineer for structural work, the engineer being nominated by the architects, but employed by the City, and he was remunerated by a yearly salary. The design of the plumbing and drainage plant, the complete electrical and power plant, the heating and ventilating plant, was by the consulting engineers retained and paid by the City, under the direction of the architects. With regard to the style or character of architecture employed, the endeavour of the architects was to follow classic principles and to keep in the spirit of the 18th century. A study of construction, the architects have endeavoured entirely to eliminate all steel or iron, excepting where these must be used to replace wood. They believe that, especially in the United States of America, steel has been used in the most illegitimate way, and suggest that its use has led to trickery and the sacrifice of structural fitness. They also suggest that steel is employed to help architects out of difficulties which they cannot solve. Each horizontal course of the several elevations is carried right through the interior, and into the two courtyards, so that the building may be said to have gone up one course at a time.

A DETACHED WATER-TOWER.

(For the assessor's award in this BUILDING NEWS Designing Club competition, see page 255.)

A tower and spire are about to be added to St. Mary's Catholic church at Baginbally, County Derry. Mr. J. V. Brennan, of Ball Chambers, Belfast, is the architect, and Mr. Hugh Thompson, of Cookstown, County Tyrone, the contractor.

Newquay has lost one of its oldest inhabitants in Mr. John Ennor, senr., builder, who had resided in the town for 82 years, and who died at his residence, Bay View Villa. Deceased was one of the pioneers of building enterprise in Newquay, and had erected a large number of artisans' dwellings and other buildings.

The Hampshire County Council, having decided to take over the control of main roads in the county, have appointed the following divisional road surveyors: Mr. J. S. Hall, King's Norton, Birmingham; Mr. J. A. Manning, Redruth, Cornwall; Mr. G. H. C. Mothershead, Castle Bromwich, Birmingham; and Mr. W. J. Potter, Old Portwood, Southampton. The salaries are £220, rising by annual increments of £10, to a maximum of £260. £40 will be allowed for travelling, and all other expenses, except postage and stationery.

A special meeting has been held of Wednesbury Town Council, when the general purposes committee submitted recommendations for the improvement of the municipal offices and baths at an estimated cost of £5,000, and that Messrs. Scott and Clarke, of Wednesbury, should be appointed architects. The Mayor, who said that he was intended to take over the main block of buildings the present education offices. This necessitates the provision of new quarters for the latter department, and it was proposed that this should be done by purchasing a portion of the old fire station, which had been thrown on their hands by the provision of a new library. The recommendations were adopted.



cloisters on three of its sides. Three tourelles facing the entrance distinguish the fourth side, where the building-in-chief stands. Over the main doorway are carved the palm, the olive, and the orange-tree, emblematic of the traffic with the East by Jacques Cour. Reliefs on each stage recall the different phases of industry, and both male and female occupations occur in which the household were generally engaged—"sweeping," "spinning," and "threshing." Vivid kitchen scenes over one door are appropriate to its use. Curious oak saddle vaulting ceils the Salle des Gades and the Passage de Service. In the former there are two fireplaces. On one chimney-piece Jacques and his wife are shown playing chess and regaling themselves with pears and oranges. The other represents a fortress and its defenders, with a tiny figure of a buffoon in the angle of the chimney-piece to the antechamber. The salle à manger is about the same size as the hall at Haddon, Derbyshire—some 40ft. by 30ft. The chapel has been over-restored; but frescoes of angels enrich the ceiling. Jacques, with an eye to devotional exercises, had also some notion of comfort, as he provided pews for himself and wife, each with its own little window and fireplace. The arrangement of the plan exhibits the charm of the Gothic mode of its contrivance, based upon the romance of diversified lines and the absence of right angles; hence much of the beauty of this remarkable house. The kitchen arrangements are well planned, with a capacious service-room, while the kitchen department has a separate entrance from the street. Facing the entrance to the courtyard is a statue of Jacques Cour, by Preault, erected in 1873, and his beautiful mansion now is occupied as a Palais de Justice—a satire, surely, on the iniquitous injustice which was meted out to such a good citizen, who helped his neighbours, his country, and his king, furnishing as he did the funds for the maintenance at one time of four armies. His prosperity had, however, aroused the envy of courtiers, while those who owed him large debts also conspired in jealousy against his

An autograph sketch in the courtyard, by Augustus Welby Pugin, was published in the Building News for Feb. 6, 1887. Another sketch in the courtyard from a different viewpoint, by George Edmund Street, appeared in our number for Sept. 25, 1894.

* See sketches of north entrance to Bourges Cathedral in the Building News for June 22, 1896, p. 887, and further drawings of details in our issues for Sept. 7, Nov. 2 and 30 pp. 317, 616, and 781, 1906. A sketch looking across the nave to North 31, E. Street, was published in our number for Nov. 31, 1901.

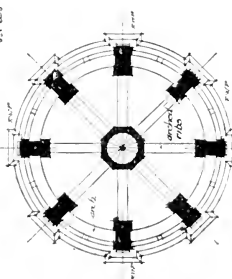
B.N.D.C.

FOR
EXHIBIT 'B'
OF THE
INTERNATIONAL
EXHIBITION
AT
LONDON
1907

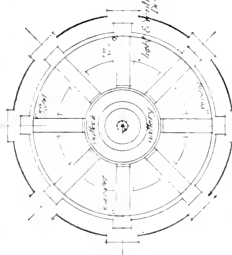
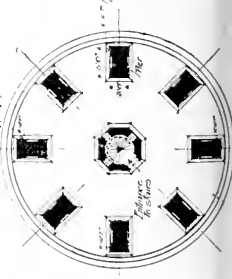
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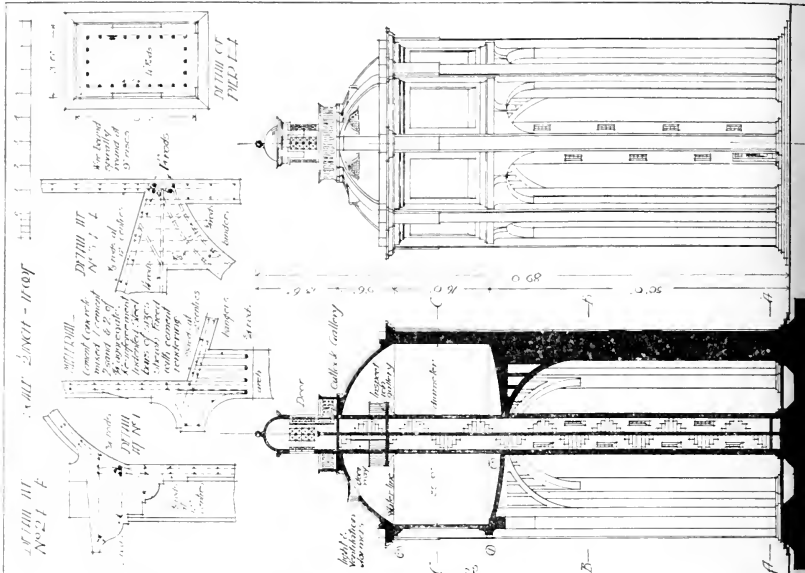
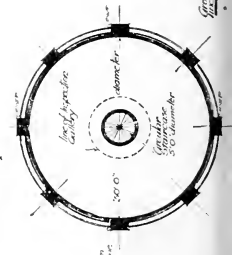
View



These at B (Working up)

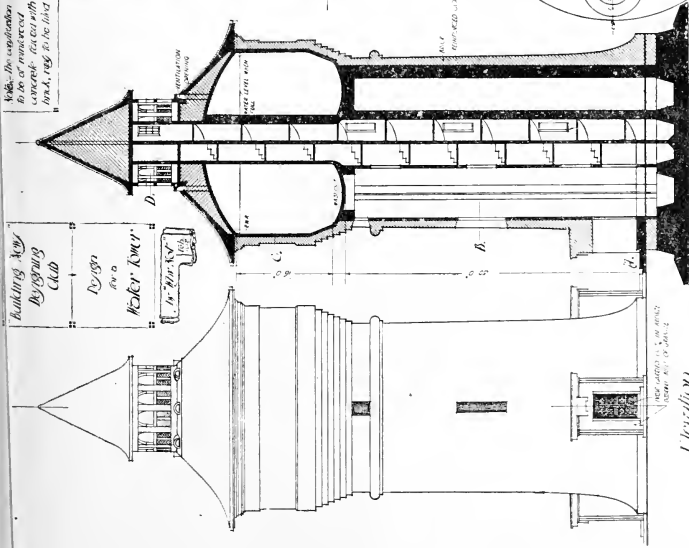


Plan at Top



Note: The construction of the tower is of masonry with a spiral staircase for the land.

Building New
Rising Club
Rising
Rising Tower

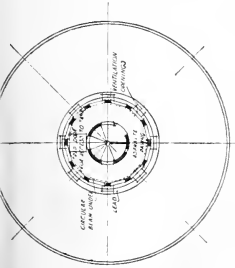
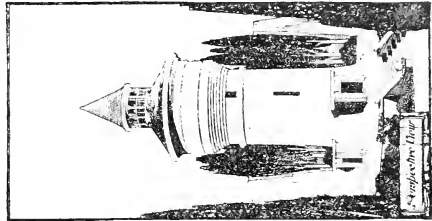


Section of the tower

Scale of feet

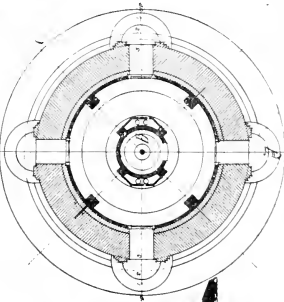
PLACED THIRD.

Plan of the tower looking up



Plan of C.

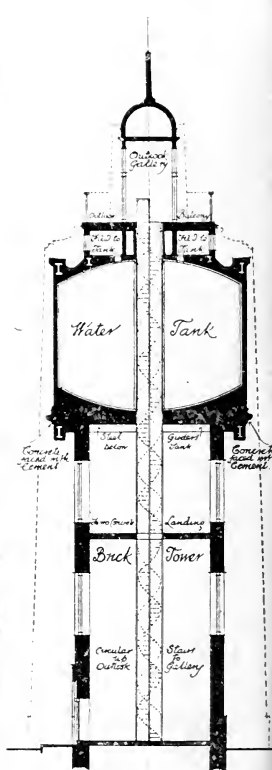
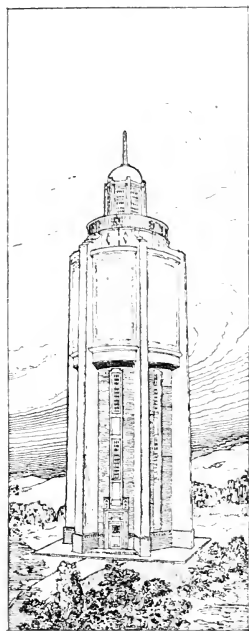
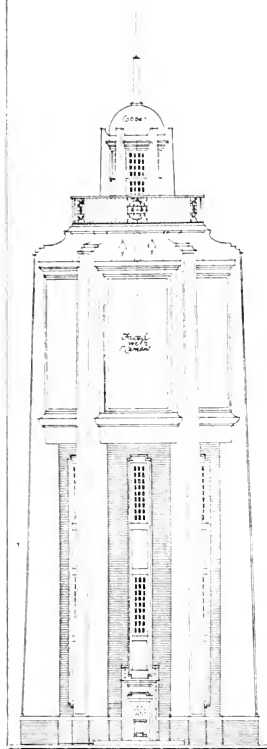
Plan of the tower looking up



B N D C

A
DETACHED
WATER-TOWER.
Designed
by
"VERITAS"

PLACED FIRST

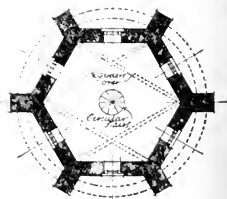
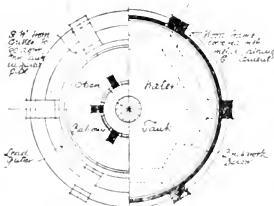
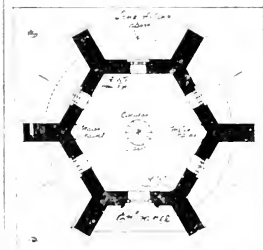


ELEVATION

VIEW

SECTION

Scale of Feet.

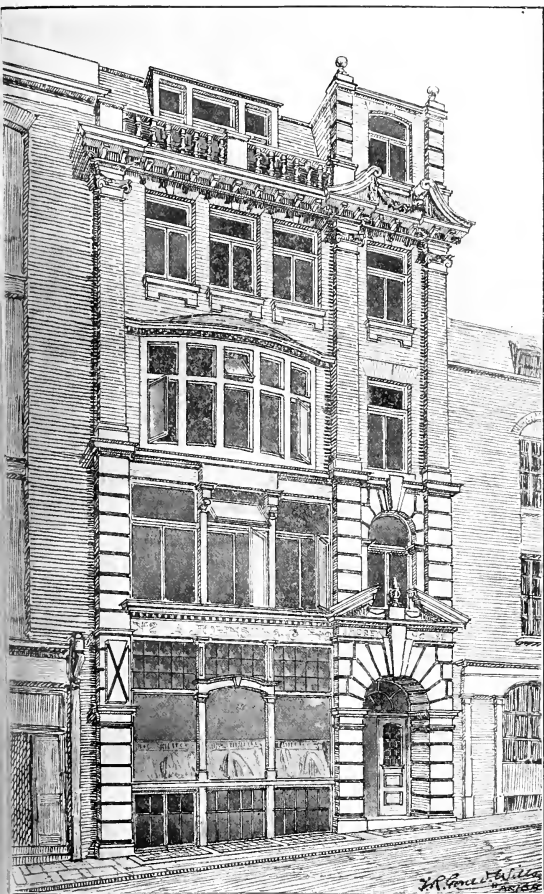


HALF PLANS

PLAN AT BASE

FOOT LEVEL & 1ST TANK

PLAN AT LANDING



WAREHOUSE, No. 11, ST. ANDREW'S HILL, DOCTORS' COMMONS.
Messrs. DAW, WILLS, and CHURCH, Architects.

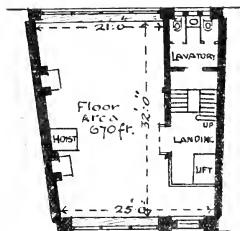
RESILIENT SURFACES FOR ROADS.
Mr. John H. A. Macdonald, a member of the Road Board, delivered a lecture on "The Road—Past, Present, and Future," at the Royal Institution on Friday evening, the Duke of Northumberland being in the chair. He stated that the problem was to find the best mode by which a road could be constructed, so that its surface would not be shaken by traffic, so that the transit might be easier for both passengers and goods, a road which would neither form puddle holes nor send mud to clog the vehicles and create a thick dust when the weather was dry; in short, that there should be no loose material on the road, except the small quantity used by surface wear, which it was found is but trifling when a sound crust had been laid in. That such a road could be laid might be seen from the Thames Embankment, which was formerly shunned as one of

the worst roads in the country, but was now used by 1,600 vehicles an hour. One thing was universally recognised—that the road of the future should be a truly bound road, in which, whatever kind of stone was used, that stone should be held together by some pitchy or bituminous material, so that it should indeed be a crust, and into which water could not penetrate. Experience showed that such a road would remain sound. Would it not be well to provide an elastic skin or carpet to lie between the vehicle and the heavy crust? Could some material be found for the exposed surface of the road, which should be resilient, yielding to traffic, but resuming its form and surface? Research had been made with pitch and bitumen, and while pitch failed to answer the requirements, bitumen had been found to be capable of being twisted without fracture, and when freed of slowly resuming its shape. It was expected that with such material laid

on the top of the main road crust, and integrated with it, a valuable road protection could be supplied, so that the road crust would be practically permanent, the upper protecting sheet being remade up and re-laid as required. Engineers at the Road Board told them that this ideal road of the future need not be a costly one; on the contrary, that once the road men were trained to the new methods, the rapidly-increasing traffic of the time before us would be carried on with little or no increase in the outlay upon maintenance, and probably, in some cases, with a decrease.

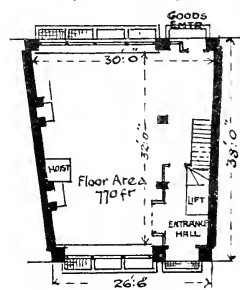
No. 11, ST. ANDREW'S HILL, DOCTORS' COMMONS, E.C.

This building is being erected on the site of two existing shops on St. Andrew's-hill. It comprises warehouse premises to meet the requirements of the soft goods trade. The entrance-hall will be lined with Sicilian and



Verde marble and paved with black and white-marble slabs. A fireproof staircase will be continued from the basement to the roof, with a passenger lift to all floors, and also a goods hoist. The trade entrance is at the rear in Burgon-street. The front is being executed in Luton purple bricks with stone dressings, the shop-front being carried up to the first

BURGON STREET



31, ST. ANDREW'S HILL

floor in both streets—this affording ample light. The top floor in addition to the windows will have a large lantern light to make it available for an engraver's studio. The architects are Messrs. Daw, Wills, and Church, of 31 to 33, High Holborn, W.C.

An appeal is made for £1,600 (of which £300 has been raised) for the restoration of the beautiful Norman church of St. Mary, Kempley, in the Gloucester diocese. The building, which dates from 1121, is celebrated for an original barrel vault, and a perfect series of Twelfth Century mural paintings. Unhappily, the church is in an alarming condition of disrepair. Mr. Temple Moore is the architect.

Building Intelligence.

AYLMERTON, NORFOLK.—Aylmerton Church, until recently in a dilapidated condition, has been restored. The roof timbers have been renewed, and the lead reset and relaid. The panelled and traceried stone parapet had to be entirely rebuilt, the mortar having perished. The windows of the bellry have been repaired and fitted with louvres and galvanised wire netting. The serious fractures in the walls have been cut out, bonded, and rebuilt, and the walls strengthened both internally and externally. The work has been carried out by Mr. Herbert Bullen, of Cromer, under the supervision of Messrs. Lacey and Upcher, architects, Norwich.

CARDIFF. The Coal and Shipping Exchange, Cardiff, reopened on Tuesday, the 20th, was erected from the designs of Mr. Edwin Seward, F.R.I.B.A., over twenty years ago. Recently the vast increase in the coal and shipping industries in South Wales have made it necessary to extend the building and to reconstruct the premises in certain directions. The central hall is over 100ft. long and 50ft. wide. It has had its walls covered with oak paneling, galleries have been added, and a large extension on the north side is also panelled, the general scheme of decoration being in oak and bronze. A series of bronze standards, fitted with electric flambeaux, have been carried round the upper balcony. The Exchange clock is surrounded by two Welsh dragons in oak, and at the opposite end on pedestals the British lions flank the entrance to the Exchange floor. The arms of the four shields supporting the canopy of the clock are supported by four columns of the coupled columns at each end, and insignia of the maritime and mining industries are on the drums of the other columns. The friezes being emblematical of "Commerce." The locks and some handsome bronze fittings are by Mr. James Gibbon, the general contractors for structural work and oak finishings being Messrs. E. Turner and Sons, of Cardiff.

MANCHESTER.—The new physical laboratory buildings at the university will be opened on March 1. The present edifices were built twelve years ago, from the designs of the late Mr. Alfred Waterhouse, R.A., and the new buildings have been planned by his son, Mr. Paul Waterhouse, M.A., F.R.I.B.A. The new laboratories stand between Bridge street and the quadrangle in Clarendon street, and are connected by corridors with the old ones. They are built round the John Hopkinson dynamo house of the original buildings, and comprise several electrical laboratories, a workshop, a library, research rooms, and a lecture hall, all faced with stone externally.

MARYLEONE. The town-hall committee recommend the borough council of Marylebone to approve the design and plans of Mr. Edwin Cooper, F.R.I.B.A., for a new town hall for the borough, to cost £61,913 19s. 1d. The plan of the accommodation to be provided, together with perspective drawings of the building, is now exhibited in the Marylebone Council Chamber. It will be decided that the design of Mr. Cooper was placed first in the recent competition in which 126 schemes were submitted by the assessor, Mr. Hope, and was illustrated, together with the other three pruned designs, in our issue of December 1, 1911. In a criticism of the complete proposals on p. 749, last volume, we said: "The successful architect has scored an unimpeachable position leaving the rest of the competitors practically helpless."

VICTORIA EMBANKMENT. Extensive alterations are about to be carried out at the Charing Cross and Temple Stations of the District Railway, from plans by Mr. H. W. Ford, F.R.I.B.A., of B. Dartmouth Street, Westminster. At Charing Cross the existing line and the entrances to the station will be reconstructed and a new carriage and footway to be erected to

building of Portland stone and red brick, Renaissance in style, containing 140 rooms, and to be used either as an hotel or as offices. At the Temple Station the booking-office is to be rebuilt and enlarged, and a new entrance provided from the Embankment. Adjoining the booking-office will be a restaurant with a floor-space of 5,000sq. ft. The flat roof, extending over the whole of the new building, may possibly be used as an open-air tea-garden.

Engineering Notes.

NEW LAMBETH BRIDGE.—According to the Parliamentary plans deposited, the new Lambeth bridge with its approaches will be of a total length of 935ft., and will consist of five spans, the centre span being 160ft., two of the side spans 145ft., and the two outer spans 125ft., each. The clear height of the centre spans above high water is 20ft., the side spans being 15ft. 6in. and 10ft. 6in. respectively at the centre of each span. The new road surface will be 2ft. above the present level on the Horseferry road approach, varying from 6in. to 2ft. on the Lambeth road approach. The surface of the roadway at the centre of the bridge will be 2ft. 10in. higher than at present. On the Westminster approach the levels of Grosvenor-road and Millbank-street will be raised.

COMPETITIONS.

THE ALEXANDER THOMSON MEMORIAL STUDENTSHIP. The council of the Glasgow Institute of Architects have awarded the studentship, value £50, to Mr. James Bennett, c/o Mr. William Cowie, A.R.I.B.A., Ayr. The trustees decided not to award the second prize of £20 which was proposed to be given. The object of the competition is to select a student for furtherance of his studies by giving him acquaintance at first hand with Classical architecture, of which the late Mr. Thomson, in whose memory the studentship was instituted, was an ardent admirer, and which he practised successfully. Drawings are required from competitors, as evidence of study in books, and from buildings, by sketch and measurement, and besides these an original design, the subject this time being a design for a bridge with approaches. Only three sets of drawings were submitted, and the trustees would gladly have seen a larger response in the number of competitors.

AUCHTERDERRAN, N.B.—Kirkcaldy District Committee, after considering the competitive plans for the Auchterderran drainage scheme, have awarded the first premium of fifty guineas to Messrs. Menzies and Cockburn, C.E., 33, York-place, Edinburgh, while the second premium was awarded to Messrs. James Frew, C.E., 216, West George-street, Glasgow.

KING EDWARD VII. MEMORIAL, SHEFFIELD.—The committee appointed to deal with the fund of nearly £20,000, which has been publicly subscribed for the above, have resolved that the memorial shall take the form of (1) a bronze statue of his late Majesty, to be erected in Fitzalan square, in the centre of the city, and (2) a home and school for crippled children, to be erected in the Kelvin Valley, on a site of five acres, presented for the purpose by the Duke of Norfolk, Mr. Alfred Dennis, A.R.A., has been commissioned to execute the scheme, which will be a colossal figure of the late King in Field-Marshal's uniform, with Garter robes. The pedestal will be of grey granite, having four bas-relief panels of allegorical figure subjects. In connection with the "Cripples' Home" it has been decided there shall be a competition for the plans restricted to local architects, and Mr. E. M. Gibbs, F.R.I.B.A., and Mr. V. E. P. Edwards, F.R.I.B.A., etc., architects, have been appointed joint assessors.

NEWCASTLE-ON-TYNE NEW TOWN HALL. The new town hall committee of New (15th Corporation, who have had under

consideration the question of a site for a new city hall, in a report issued, are of opinion that the most suitable site for the purpose would be that now occupied by the Northumberland Baths, which contain an area of 4,030 square yards. One large hall to seat 3,500, and a hall of smaller size to seat 800 persons, could be provided, also suitable reception-rooms. The cost of the scheme, including a large hall to seat 3,500 persons, a small hall to seat 800 persons, reception-rooms, furnishings, etc., and site, is roughly estimated at £100,000. The value of the land is estimated at £36,270. If the council approve of the recommendation, the committee further recommend that they advertise for competitive designs for a new hall, and offer prizes for the three best: First, £500 (to be merged on commission in the event of the recipient obtaining the work); Second, £250; third, £125. The committee had also referred to them the question of providing suitable municipal offices and buildings upon the present site; but they are of opinion that their powers and duties should be limited to the question of the new city hall, and suggest that any rearrangement or reconstruction of the present buildings for municipal offices should be carried out by the estate and property committee.

WASHINGTON, D.C.—For the Perry Memorial fifty-four sets of designs were received and are being judged by the new Museum in Washington, D.C. The Commission of Fine Arts have spent three days in examining the plans, and on the recommendation of their professional adviser, Mr. F. Miles Day, of Philadelphia, the Inter-State Board has made its award of the prize to the author of design No. 5, and appointed him architect of the memorial. It also awarded the first premium to No. 17, the second to No. 34, and the third to No. 54. On opening the sealed envelopes containing the names of competitors, it appeared that design No. 5 was by Messrs. J. H. Freedlander and A. D. Seymour, associated. It also appeared that the design numbered 17 was by Mr. James Gamble Rogers, the design numbered 34 was by Mr. Paul F. Cret, the design numbered 54 was by Messrs. Dillon, McLeod, and Beadle.

YORK.—We are informed that 203 designs have been received in connection with the competition for the new Yorkshire Technical School, Messrs. T. Melhard Reade and Sons, of Liverpool, are the assessors.

The memorial to the late Archbishop McHale will take the form of a church to be built at Lahardine, Co. Mayo. The architects are Messrs. W. H. Byrne and Son, of Suffolk street, Dublin. The architects of Ruskin College, Oxford, are Messrs. Joseph and Smithers, of 83, Queen-street, Chichester, E.C., not Mr. Basil Champney, who stated in a momentary forgetfulness on p. 195 in our issue of Feb. 9.

Sir John Gay Newton Allyn died on Wednesday at Falmouth at the age of 92. He was Warden of Dulwich College from 1843 to 1851. From 1852 to 1880 he was engineer and manager of the Barrow-in-Warner, Dorsetshire, and was a member of the Institutions of Mechanical and Civil Engineers, and was vice-president of the Iron and Steel Institute. Sir John was responsible for the building of the large span roof of the Victoria Works in such form.

The town council of Ipswich has appointed Mr. R. C. Wrinch, A.R.I.B.A., as architect of a school to be built in St. Helens district, his remuneration to be at the rate of 10s. per child accommodated in the school, as certified by the local Education Committee. Mr. Wrinch was appointed as quantity surveyor, his remuneration to be 1s. per cent. on account of any tender accepted for which quantities were prepared, less the amount of any provision for contingencies included in such tender.

The first and for the new waterworks to be constructed by the Aberllynny and District Water Board at Llawer Gwynny, at the foot of the Black Mountains, about five miles from Abercromby, was cut on Wednesday last week. Mr. Edwin Latham, the engineer, in charge of the works, has been busy for some time, the first soil, said they were inaugurating a vast scheme, by means of which the 90,000 inhabitants of the Western Valleys of Monmouthshire would have a pure supply of water, the contractors are Messrs. Underwood and Walker, of Dinkfield.

Correspondence.

THE POLICY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR.—I very greatly fear that matters are being allowed to slide at Conduit-street in regard to the unification of the profession, and as one who did not intervene at the last Business Meeting for the reasons mentioned by "One Who Wished to Speak" (your correspondent of the week before last), I also thought the proceedings most unfortunate, being based as they were upon reaction so displayed as to induce half-hearted supporters to retract, and it is precisely this result which now seems summing.

I hear, however, that the Society of Architects has at last given its consent to the publication of a verbatim report of the proceedings of January 8, and consequently in the next issue of the R.I.B.A. Journal of Transactions of Feb. 24 this will appear. It is to be hoped that the report will be printed in full, and not "edited," but given in its entire amplitude, so that the position taken up by the obstructionists may be exactly realised as then expressed. The hands of the dial may be set back for the time, but only pro tem.—I am, etc., A FELLOW.

THE LATE MR. T. M. RICKMAN.

SIR.—Seeing in the BUILDING NEWS of the 16th inst. the account of the combined meeting of the Architectural Association with the Junior Institution of Engineers, at which a vote of condolence to the relatives of the late Mr. T. M. Rickman was carried, I beg to say that Mr. Rickman was the first to bring to public notice two most important improvements, since carried out in London—namely, the Thames Embankment and the Holborn Viaduct. Mr. Rickman read a paper to the first-named association, I believe in the year 1857, on the advisability of carrying out the two works I have here named. I was the junior in Mr. Rickman's office at the time, and by his request I traced from the map the districts of the Thames, and for the Viaduct from Hatton Garden to Snow Hill, and further. I attended this meeting when the paper was read, and assisted in putting tracing on blackboard. I feel sure Mr. Digby Wyatt, one of the leading architects, was chairman at this meeting. Mr. Rickman's office at this time was in Little Ormond-street.—I am, etc., W. W. STANLEY.

37, Newmarket-road, Norwich, Feb. 19.

The city of Victoria, B.C., has formed a local chapter of the British Columbia Society of Architects. Mr. Houti Horton is president, and Mr. F. M. Rattenbury, honorary president. The secretary-treasurer is Mr. Jno. Wilson.

On page xi, in our issue of Jan. 26, we stated that the Caststone Decoration Co., of 77, Mortimer-street, W., were "supplying plaster decoration to 75, Strand." We are informed that this material is an imitation stone applied in plastic form, but there is no plaster in the same.

The Hampshire County Council have united with the councils of the county boroughs of Bournemouth and Southampton, for the erection of a new lunatic asylum, at Park Prewett, near Basingstoke, at an estimated cost of £355,000, exclusive of laying out the grounds, furniture, and equipment. The building will provide accommodation for 1,400 patients, and will be erected on a site of 302 acres.

The foundation-stone of a new church in the Toller-lane district of Bradford was laid on Saturday afternoon by Viscountess Mountbatten. Montgomery has contributed £7,500 towards the cost of the building, while the site has been given by the architect, while the church will be 125ft. long, 75ft. wide, and 60ft. from floor to ridge. The architect, Messrs. Nixon & Co., of Cornhill, Birmingham, have allowed an unimpaired area for a large congregation, with no break in the architectural lines to distract attention from the altar, which is emphasised at the east end in a semicircular and semi-domed apse.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Chas. A. London, 32, Ivanhoe-road, Denmark Park, London.

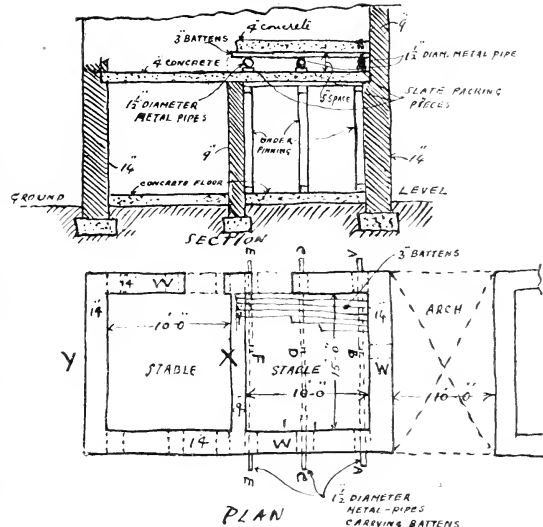
QUESTIONS.

[1130-9.]—AIR-TIGHT FLOOR.—It is desired to construct a good airtight floor above two horse-boxes and a stable. The local authorities insist that the floor must be laid in two separate floors, with an air-space

at D; but I think these two pipes could easily be drawn out when both their ends were loose at C, then the other half of the floor could be laid in the same way, and the battens drawn out at Y. The holes in the side walls where the pipes are placed would be filled in afterwards, with airbricks for ventilation for space between floor. This floor would then be supported on the walls at W.W. The only parts where it would not be supported would be at the centre wall at X and the end wall at Y, but these would be filled in after the battens had been extracted. Would this be a practicable and good way of doing the work?—T. H. Taylor.

REPLIES.

[1130-9.]—AMERICAN ROOFING.—Assuming a load of 2½ cent. per foot super, the total would be about 136 tons. Dividing this into three bays by two girders, each would have to carry a load of 45 tons over 32ft. is very large span. A broad flange beam would have to be at least 21in. deep to avoid deflection. A beam 22in. by 15in. with 12½lb. per foot run would be sufficient. Over these I would place some 5in. Monolithic concrete girders at 15in. centres, with twisted hoop steel passed through their webs, and finish the top off with a splat, about 1in. thick. It is almost impossible to arrive at a price, as the information is rather too meagre. In a job like this there are so many circumstances which govern the cost. Take for instance the following:—(1) Each girder will weigh about 2½ tons—to what height have these to be hoisted? Again, they will be about 36ft. long, requiring special use of the railway trucks, and hence special rates, and how far have they got to be carried? (2) What height would the concrete roof be? This is important, on account of hoisting up the materials and "hoisting" the centering. (3) How can the water off the roof be dealt with? Has the asphalt to be dressed into a gutter or to a parapet wall? (4) All these items will materially govern the cost, which in round figures would work out at about £100. The long span without any



between them. The specification is for of expanded metal concrete floor, laid in usual way, then a 3in. space, then another 3in. floor as before, with a good number of air-bricks to ventilate the space, the top floor to have 3in. by 2in. dovetailed joists, partly embedded in concrete to receive tongued and grooved boarding. The foreman says this cannot be carried out, as the necessary centering in space to carry top floor cannot be removed after the floor is laid. I proposed the following way: To lay the first floor over the two boxes, as shown in sketch, and then to lay half of the upper floor at one time, by using six metal pipes 1½ in. diameter, and passing them on top of first floor, right through from wall to wall, two of their ends butting against each other, as at B, D, and F. These pipes would all be packed up by pieces of slate at their inner ends, and at the walls at each side: then to place 3in. battens close together on top of pipes to carry upper floor, When the floor is set the slate packing pieces could be knocked out at A, A, C, C, E, E, and also at B, through a hole in the wall, and the pipes drawn out. Then the battens would all be drawn out over the 9in. cross wall at X; the only packing-pieces that could not be very well got at would be

intermediate support would be impossible for nearly on third—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

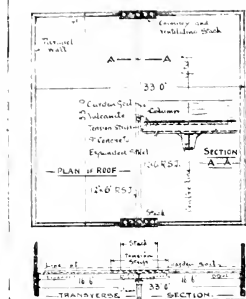
[1130-9.]—AMERICAN ROOFING.—The accompanying figures illustrate very clearly the construction of a garden roof on the American principle, and almost identical in area to one the writer designed for a hotel on the west coast during the spring of last year. The roof consists essentially of a main steel beam, and a secondary beam, with steel joists at right angles to the main beam, and a 1½ in. of garden soil thereon. The rolled steel joist placed centrally is a 12 in. by 6 in. by 24 lb. British Standard Section No. 12, supported at the points shown on the plan by a 4 in. solid steel column. The load is therefore distributed evenly over the whole area, the effective span being 16ft., and taking the unit stress of 7½ tons per inch gives the section modulus of 62.58 in. There is 6 in.—

$$62.58 \times 8 \times 7.5 = 10.33 \text{ tons}$$

$$16 \times 12$$

As will be seen, the deflection of the beam is con-

siderably under the limit of 1,500 of its span, while the depth also falls well within the limits. An alternative, if the circumstances will not permit of a column being used, is to replace this rolled steel with two iron, by 6 in. by 22 in. U.S.A., bolted together with cast-iron connectors. The whole area is covered with 2 in. of Portland cement concrete, reinforced with 2 in.-inch expanded steel, the concrete consisting of one part Portland cement, 2 parts sand, and three parts broken stone, brick, and gravel of various sizes between 1 in. and 1 in. mixed, etc., to the requirements of the Standard Specification, and the work executed by men experienced in form-



forced concrete construction. The roof is considered as a horizontal slab exposed to a live load of 70 to 60 lb. per foot sq. The roof is finished with either a covering of asphalt or valentine. The roof constructed in this manner ensures a uniform temperature throughout. It is somewhat difficult to prevent surface cracks, owing to elastic influences and constant change of temperature, and therefore the reinforcement should be so placed in all of the smallest sectional area. In most cases these cracks occur immediately above the line of reinforcement. Short lengths of cast-iron pipe should be inserted in the concrete to form ventilating shafts. This provision for ventilating the rooms below during the construction of the roof is of the utmost importance; otherwise condensation will follow, which afterwards is an expensive trouble to rectify.—*Chas. A. Lomley, 52, Rotherhithe Road, Denmark Park, London.*

[13075].—**SUNDIAL ON SIDE OF HOUSE.**—I happened to be going to Dorking during the week-end, and took a walk to see the sundial mentioned by Mr. Garrod. I discovered it at South Boha-wood, on the house owned by Mrs. Lawrence, the architect. The question is, is a whitened brick one forming part of a very artificial house, or the main road. The little sketch herewith will show



the arrangement of the dial. The iron rod is a square one, with the ends apparently split and bent to form fins in the manner shown. It is perfectly plain. The segment on the wall is painted on, but I believe the degrees are formed with wire. The motto is above the dial, not below, and reads,

"Let others tell of storms and showers:
I thank the sun's morning hours."
So far as I could calculate without a compass, the gable faces south-east.—*L. F. Smith, W.-tham, Catterdon-road, Redhill.*

The two following pictures, forming part of the Turner collection, but previously unexhibited, have been placed on a screen in Room XXI at the National Gallery for temporary exhibition. George IV. at St. Giles, Edinburgh. George IV. at a banquet in Edinburgh.

LEGAL INTELLIGENCE.

IN RE DANIEL NORTON AND SONS.—Mr. Registrar Broughton presided on Friday over the public examination of a bankrupt—namely Court of Mr. Daniel Norton, sole surviving partner of the firm of Daniel Norton and Sons, late of the Estate Office, Chelney-croft, Chelmsford, tender merchants. A statement of affairs, laid on, submitted showing gross liabilities of £3,958 18s. 8d., of which £22,574 18s. 11d. was expected to rank, against estimated assets £5,027 19s. 7d. Replying to Mr. W. G. Williams, Assistant Official Receiver, the bankrupt stated that the business of Daniel Norton and Sons was established by his father probably before 1810. After 1853, when his father retired, he and his brother, Jason Dolven Norton, continued the business. In 1904 they agreed to wind it up as quickly as possible, but, owing to the bankrupt's ill health, the winding up was, after 1905, left to his brother, who continued to carry on the business. In November, 1911, his brother died, and, on investigation, the firm was found to be insolvent. He attributed the failure mainly to the increase since 1904, and to the heavy drawings of his brother. The examination was concluded.

JUSTICE A VALLA A "BUILDING"—Before Mr. Justice Warrington in the Chancery Division on Friday, the Regent Canal and Dock Company (Limited), applied for an injunction against the London County Council in respect of a portion of the company's property in New Bridge-road, Shoreditch. Mr. Balfour Browne, K.C., moved for an injunction to restrain the County Council from entering on land comprised in the Council's notice to treat, viz., the New North-road Bridge, Shoreditch. The Council were purporting to act under a Private Act of 1910, obtained by them for the purpose of making certain tramways, and incidentally to make certain roadways. The land which the Council proposed to take was most of the eastern half of a plot between the towing-path, and also the wall which bounded the company's property to the north. But the Council also gave notice to take a portion of the bridge itself. They proposed to make a bridge, but they had given the Council no notice to treat for the waterway under it, and under the Land Clauses Act, the Company gave the Council notice that unless they came to some agreement with the company they would sue the Council for trespass by taking the land. It was a silly thing to be fought out between two great bodies, but counsel thought the County Council would have to come to terms with the company as not to impede in any way the company's business. Mr. Morris, K.C., for the Council, submitted that the Council had in their notice to treat was the land and all the land which they required for the purpose of their improvements, and it was the land they were authorised to take. The notice was within the Council's strict legal rights. His Lordship, giving judgment, said that the only question he had to determine was whether the pieces of land the County Council proposed to take were part of a building under the true construction of Section 92 of the Land Clauses Consolidation Act. In his opinion he was bound to refuse the injunction on the ground that the pieces of land comprised in the notice to treat were not part of a building within the meaning of that section. The canal was a highway under the construction of the Act. The motion therefore failed.

LIABILITY OF BUILDERS AND EMPLOYERS. IMPORTANT ACTION AGAINST AN INSURANCE COMPANY.—An action of great importance to builders and contractors in regard to insurance against claims for compensation for personal injuries caused to people in accidents through the negligence of employees came before Mr. Justice Phillimore, sitting with a jury in the King's Bench Division on Tuesday, Feb. 20, when Mr. Morris Joseph Allen, solicitor and decorator of Adelaide-road, Shepherd's Bush, London, proceeded against the London Guarantee and Accident Co., Ltd., of London, in regard to an alleged breach of agreement. The defendant company denied liability. Mr. Colman appeared for the plaintiff, and the defendant company were represented by Mr. Clavell Salter, K.C., and Mr. Harris.—Counsel stated that Mr. Allen had a policy with the defendant company whereby he was indemnified for all claims against him. The company might be legally liable to pay as compensation for injuries caused to any person through any horse, or horse-drawn vehicle, belonging to the plaintiff or in the charge of any authorised driver. The claimant's horse and carriage were injured on January 29, 1910, a driver employed by the plaintiff was in charge of a four-wheeled van at Vauxhall Bridge-road, Battersea, and, as the result of an accident, two men, named Turner and Ridsdel, were thrown to the ground, and injured by the wheels of the van. Eventually,

proceedings were taken by Turner and Ridsdel against Mr. Allen to recover compensation for their injuries. £300 and £100, respectively, in accordance with the terms of the policy, gave instructions respecting the defence of the actions, which were heard before the Lord Chief Justice and a jury, with the result that Turner and Ridsdel recovered the sums claimed, £375 and costs. The costs were taxed, and, subsequently, the defendant company put execution in on the plaintiff, who, in order to save his goods, had to pay a sum of about £428. After the trial and judgment, the defendant company forwarded to the solicitors to the plaintiff £375; but it was intimated afterwards that the odd sum of £75 had been paid in mistake, as the total liability of the defendant company under the policy was £300. Mr. Colman proceeded to argue that as the defendant company had taken over the defence of the action they could not now recover losses incurred in their efforts to evade liability. They made voluntary payments in order to get a licence for themselves—i.e., the escaping liability altogether. In regard to the argument as to the liability being limited under the policy to £300, he submitted that it was for the defendant company to prove that these two claims arose out of "one accident" or "one occurrence." The defendant company (the defendant company) argued that the policy fixed a limit of £300 as to compensation, costs, charges, and all expenses. Counsel called the men Ridsdel and Turner to give evidence as to the accident, after which his Lordship expressed the opinion that there was "one occurrence" out of which the accidents arose. Mr. Clavell Salter, in further argument, contended that under no circumstances could more than £300 be recovered of the defendant company. The defendants would not press for the return of that. Replying to Mr. Salter, Mr. Colman argued that if assured persons under the circumstances were liable to have large bills of costs run up against them, which would have to be paid (involving them) such a contract of indemnity would constitute a burden rather than a benefit. The defendant company were not asked to go and fight the claims, and if they chose to adopt that course, the plaintiff could not be held liable to recover the costs. In delivering judgment, his Lordship stated that his view of the contract between the parties was that if the plaintiff defended an action, he could not recover from the company more than £300, but that he required the assured to lend his name for the purpose of the litigation, then there arose a common law liability to pay the costs. The plaintiff, consequently, was entitled to judgment for £218 2s. 3d. with costs.—A stay of execution with a view to an appeal was granted to the defendants.

"ANCIENT LIGHTS"—COCKERILL v. THE MIDLANDS RUGBY CO-OPERATIVE SOCIETY.—The House of Lords on Thursday, the 15th inst. Lords Macnaghten, Atkinson, Shaw, and Robson dismissed the appeal brought by Mr. H. M. Cockerill against an order of the Court of Appeal in favour of the respondents, the Midlands Co-operative Society, Ltd. The facts have been fully reported in these pages (see p. 671, Nov. 14, 1901), when the plaintiff's appeal from Mr. Justice Ridley's decision was dismissed by the Court of Appeal.—Lord Macnaghten said that the Court of Appeal had arrived at a decision of Mr. Justice Ridley, who had refused, in his discretion, to grant a mandatory injunction. In his opinion, that decision was right. It seemed to him that the Court of Appeal, where elaborate judgments had been delivered, had been misled by the plaintiff's raised with too much ceremony. It was not necessary for him to trouble the House with the facts in order that they might pass their judgment on whether this undertaking amounted to a guarantee covenant, which, on the authority of "Doherty v. Allen," should be enforced by mandatory injunction. Whether, on the facts disclosed, an injunction should be granted, was a matter of discretion for the judge. Mr. Justice Clavell delivered the judgment of the majority. It was perfectly clear that no damages had in fact been sustained by the plaintiff, and therefore he should merely move that the appeal be dismissed, with the usual consequences. The other noble and learned lords concurred. Order accordingly.

ARCHITECTS' CLAIM FOR FEES.—Judge Bradbury gave judgment in the Bolton County Court on Tuesday in several motions for the reversal of decisions of the official liquidator in the liquidation of the Bolton Engineering Company, Wigan. There had been several sittings, and lengthy argument over a claim by Messrs. Stott and Sons, architects, Manchester, for £8,475 damages based on a commission for the execution of a contract for the building of two mills. The building scheme

Our Office Table.

An effort is being made to save, and re-erect, in a park the main facade of the old town-hall in King-street, Manchester, which has of late years been used as a free library, and is now in course of demolition. Mr. Edgar Wood, the president of the Manchester Society of Architects, and his council strongly support the proposal, and it is understood that the proprietors of Lloyds Banking Co., who have purchased the site and materials of the building, are showing a commendable public spirit in the matter. The old town-hall was built between 1822 and 1825, and its erection was one of the first and most important steps in the progress of Manchester towards a great corporate existence. The dignified Ionic facade which it is hoped to save is modelled on that of the Temple of Erechtheus at Athens. The Classic facade is particularly suitable for re-erection if placed on a suitable site, with foliage and water surroundings, as Mr. Wood has illustrated by a spirited drawing, showing a large pond, and the cost of its removal should not be great. The parks committee are holding a special meeting to consider this excellent and timely suggestion to-day (Friday).

Mr. Edward Schroder Prior, M.A. (Cantab.), F.S.A., F.R.I.B.A., was elected Slade Professor of Fine Art at Cambridge on Tuesday, in succession to Dr. Charles Waldstein, resigned. Professor Prior, who is in his 60th year, was educated at Harrow and Caius. He was distinguished as an athlete at Cambridge, and won the Amateur High Jump Championship in 1872. He was a pupil of Mr. Norman Shaw, M.A., and the Architect of the Museum and the School of the University and the Henry Martyn Hall. He is architect to Harrow School, and to Winchester College, and has designed and carried out numerous churches, rectories, and houses. Mr. Prior was one of the founders of the Art-Workers' Guild, and has been secretary of the Arts and Crafts (London) Exhibition Society since 1902. His publications include "A History of Gothic Art in England," and books on the architectural and the Mediaeval figure-sculpture of England.

The Victoria and Albert Museum has recently acquired a considerable number of drawings and designs by Alfred Stevens from the collections made by two of his pupils, James Gamble and Reuben Townroe, both of whom died in the early part of 1911. These have now been mounted and labelled, and a selection has been placed on exhibition in Room 75, advantage being taken of the opportunity to rearrange the drawings by Stevens already shown there, which are now grouped according to subject throughout the gallery. Designs for the decoration of St. Paul's Cathedral form one of the most important sections of the exhibition, the various studies in red or black, chalk or pencil, being illustrated by tracings made by Townroe and Gamble of the completed designs. The designs and studies for the decoration of Deybrook have also been brought together and are now supplemented with several full-sized working drawings of details in colour, which have not before been exhibited. One of the most interesting of the new acquisitions in this class of work is a sketch in water-colour for the decoration of a staircase and landing of a public building. The Museum has acquired several early studies both of landscapes and from works by Old Masters, made by Stevens during his first visit to Italy, among them being small copies in water-colour of Titian's "Flora" and "Eleanor Gonzaga." The collection also includes studies in black chalk for the decorations of Dorchester House, and designs for silver-mounted work, candle-bricks, street lamps, pottery, and stoves, as well as a large number of slight sketches of architecture and furniture and memoranda of subjects for group compositions. The Museum now possesses upwards of 500 drawings and studies of this distinguished British artist; those not exhibited in Room 75 or Room 48.

where a series related to the Wellington Monument has been hung, being obtained on application in the Students' Room 71, or the Department of Engraving, Illustration and Design.

The most important Local Government Board inquiry held in Dewsbury for very many years was conducted at the town hall on Friday by two of their inspectors, Mr. Hetherington, C.E., and Mr. Maxwell, barrister. The town clerk appeared for the corporation, who are seeking powers for greatly extending the sewage works and dealing with trade effluents from woollen manufacturing, dyeing, and other works by a Provisional Order; and, further, to alter and amend Acts relating to the gas and water undertakings, for which an additional £50,000 is required. Various interests were officially represented. The town clerk explained that the sewage works of the corporation, as designed for the old borough, were amply sufficient for the treatment of domestic sewage, discharges, and other works, but trade effluents began to be poured into the sewers without the knowledge or consent of the corporation, and the result was that the works were seriously damaged, and the proper treatment of sewage became so unsatisfactory that complaints were made about the effluent poured into the river. The corporation were compelled to extend the works, and the cost might be from £45,000 to £90,000. They were prepared, under the present scheme, to receive and treat trade effluents.

A scheme for the improvement of the centre of Dundee has been prepared by Mr. James Thomson, city engineer, and was submitted on Tuesday to the town council, who appointed a committee to consider and report upon the proposal in all its bearings. The ambitious scheme practically involves the reconstruction of a large central area. First of all, it is proposed to demolish property to the west of the square, facing the Town House, and to widen the Overgate for a distance of nearly 1,500ft., making that thoroughfare 70ft. wide. Next, it is proposed that all the old property behind the existing Town House should be demolished, and that on the space secured a covered public market should be erected. On the understanding that the co-operation of the Harbour Trustees is obtained, the idea of acquiring the old Earl Grey Dock is elaborated, and on the site thus secured it is suggested there be erected municipal buildings and a city hall. vast improvements in the way of street-widening and laying and property demolition in the vicinity of the railway stations are outlined. The property marked for demolition yields a rental of £24,800, but the engineer states that by the scheme land of the value of £200,000 would be acquired, and expresses the opinion that the project could be financed. A supplementary scheme is also submitted for the reclamation of eighty-five acres of ground from the Tay in front of the existing Esplanade.

The London County Council on Feb. 1, 1910, accepted the tenders of Messrs. John Leaning and Sons and Messrs. J. Rider Hunt and Co. to take out quantities for the first section of the substructure and superstructure of the new Cannon Row Electric Tunnel, to be divided in equal proportions between the two firms, of 1 per cent. of the cost of the works. It is now necessary to obtain quantities for the second and third sections of the substructure of the new building, and the two firms referred to have offered to take out these quantities at the same rate of remuneration as that for which they prepared the quantities for the first section. The Council are recommended by the building committee to accept this offer. The remuneration to be made will be about £500.

Mr. E. Evans Cronk and Messrs Potter and Harvey, architects practising in Sevenoaks, recently wrote to Earl Stanhope, expressing their surprise on learning that the King Edward Memorial Committee had nominated as architect for the proposed hospital Mr. W. A. Pitt, F.R.I.B.A., of London, upon the grounds that he is the architect of the King's College Hospital. They submitted that the

never matured, and the question was whether the commission was payable to Messrs. Stott on mills "to be" built, or mills "when" built. The Judge said he agreed with the Official Receiver's contention that the commission could not be due until the building had been erected. After reading an estimate given by Messrs. Stott, how a bill of the kind could be financed, the Judge said there was no binding contract. "I go further," he said, "and I don't hesitate to say that if the intention of the directors and Messrs. Stott was that the company should be liquidated, or that a contract at all events to build two mills, such a contract was so utterly reckless and imprudent that it was not and could not have been passed in the bona-fide interests of the shareholders." It would have been a gross breach of trust on the part of the directors. The question remained, Were the architects entitled to anything at all? The official liquidator had said they were entitled to nothing. He did not agree with that contention. They rendered services to the company at the latter's request. As to the rate of payment, he ridiculed such a charge as £10 per hour. He allowed £250 as a reasonable remuneration for the work done; they had received £1,500; so they had been overpaid £1,250. As to Mr. H. H. Stott's claim of £1,941, representing £1,775 loan money, and £167 interest, the Judge said that as to £270 the claim was good, as that was money lent in cash to the company. The balance of £1,500 loan money alleged to have been lent in several sums to the company. One cheque for £350 was sent by Messrs. Stott to the company, which was asked to place it to the credit of Mr. H. H. Stott as a loan, and to send an acknowledgment on account of services rendered. The real substance of the payment was the conversion of a claim for architect's services into a claim for money lent. He gave judgment for the £270 lent and interest, for £270 and interest for services rendered, making total £520 and interest. As to the £1,671 interest actually paid to Mr. Stott must be deducted. In this case the liquidator must pay the costs.

A READING ARCHITECT'S BANKRUPTCY.—Mr. William George A. Hambling, who for many years had practised as architect and surveyor at Reading and Caversham, did not appear at the Reading Bankruptcy Court on Friday to undergo his public examination. The Official Receiver (Mr. Cecil Mercer) informed the Court that the firm was believed to be in America. The examination was adjourned *sine die*.

Mr. Charles Henry Mabey, sculptor, late of Westminster, died on Saturday at Stonehill Mansions, Streatham, in his 77th year.

The wooden annex at Harrogate Pump Room is to be replaced by a glass and iron structure to cost £2,000, and giving a space area of 2,773 square feet, against 1,927 in the existing wooden structure.

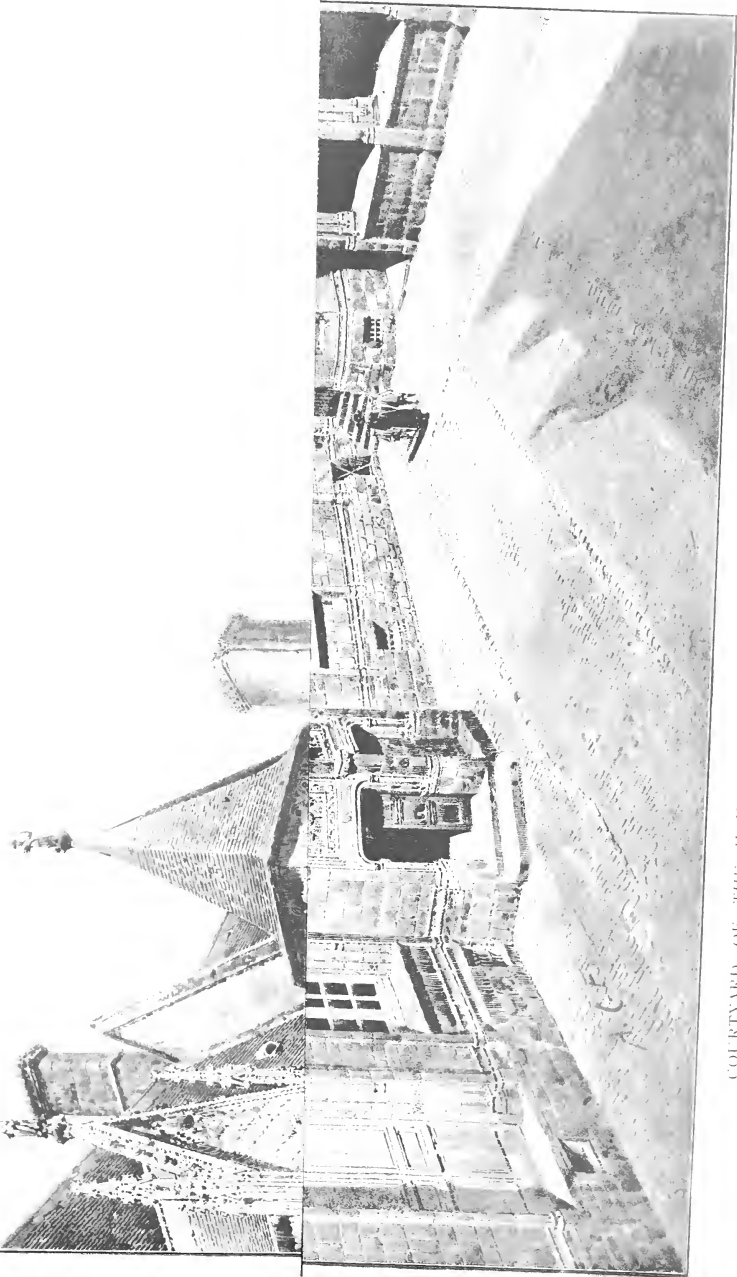
Mr. William Finch, deputy-surveyor, Cumberland, was promoted on Monday to the post of county surveyor and bridge-master, in the place of the late Mr. G. J. Bell. The salary to start with is £350, and it will be advanced by £25 yearly till it reaches £450.

At the Mart, Topham-square, on Tuesday, the freehold site, 3,040 square feet, of the Church of St. Mary, Spital-square, was submitted for sale by Messrs. Debenham and Tewson. One of the conditions of the sale was that the purchaser must take down the entire fabric. The property was bought in at £1,850.

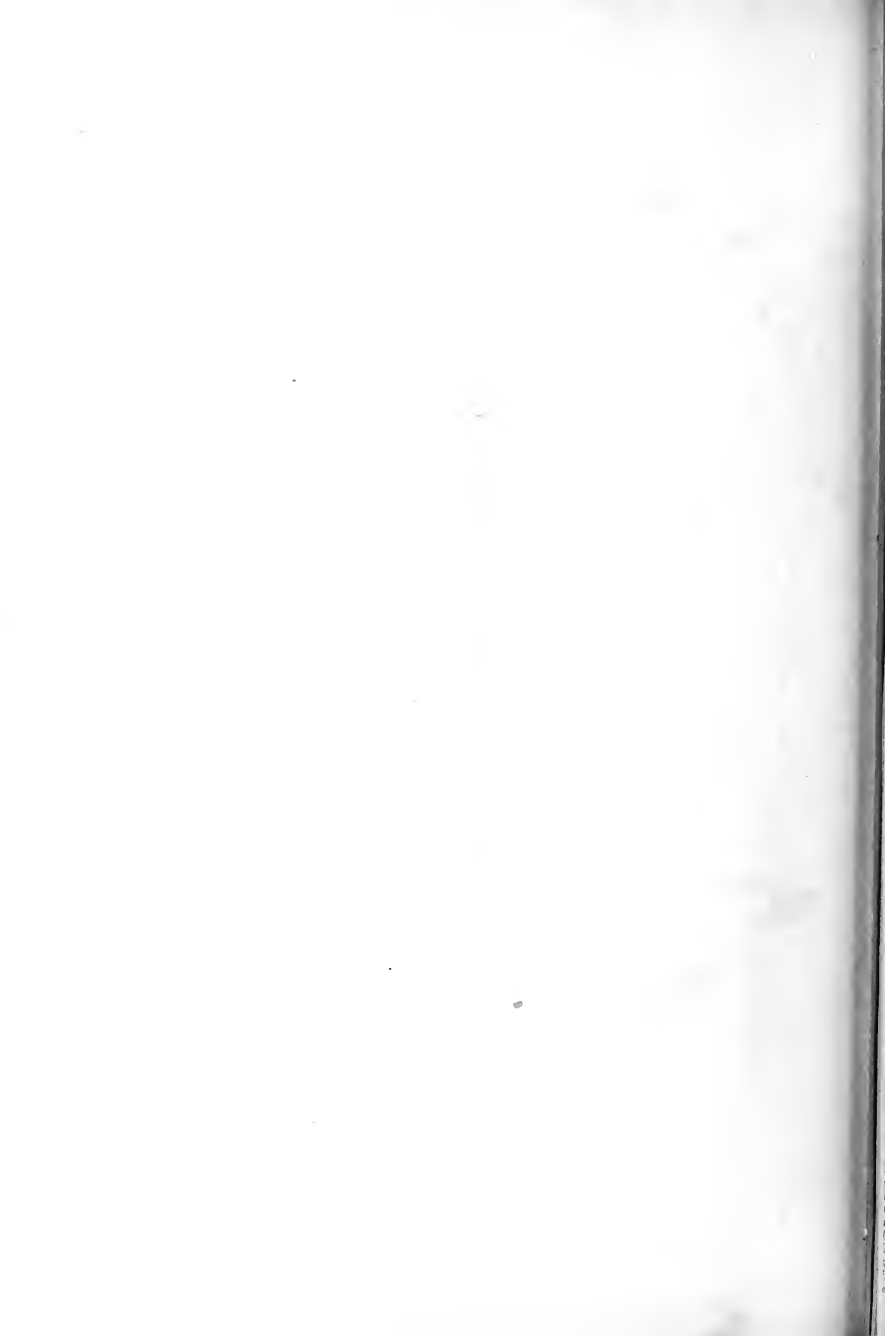
The corporation of Margate have voted an honorarium of £30 to Mr. E. A. Bore, the borough engineer, for special services in connection with the erection of the pavilion and water-gardens. The services of Mr. J. S. Sanderson, surveyor, and Mr. C. Liff, draughtsman, have been acknowledged by gifts of £25 each.

The baths and wash-houses committee of the corporation of Newcastle-on-Tyne decided on Tuesday to erect baths and wash-houses on a piece of land near the police-station at Walker, and also on a site near Atkinson-road council school, Benwell. It was also decided that competitive plans be advertised for, and a sub-committee was appointed for this purpose.

The foundation-stone of the King Edward VII. Memorial Hospital at the Waterhead near Staffordshire General Hospital was laid on Friday. The extension consists of a new block on the north-east corner of the main buildings, comprising two wards in two stories, with eighteen beds in each ward. The estimated cost of the wing and its furnishing is £7,235. Mr. A. W. Worrall is the architect, and H. H. Willcock, of Wolverhampton, the builder.



COURTYARD OF THE HOUSE OF JACQUES CŒUR, BOURGES. DRAWN BY M. A. C. J.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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A PAGAN "POT-BOILER."

It is so rarely that the faults of one century are mimicked by the faults of an older one (perhaps thousands of years older), that to come upon the prophecy of an English "pot-boiler" of the nineteenth century in Roman work of about Constantine's time, seemed, when it was dug up, a remarkable thing. We live amongst "pot-boilers," and die amongst them, and the brightest hope an architect can cherish is to rise again in a world where "pot-boilers" shall be no more. A "pot-boiler," in an artistic sense, is something that pretends to be artistic without being so, and that pretends to be so because, in a mad age like this, people who have money are ready to give it for what only pretends to be artistic. What they will give it for depends on the form their mental affection takes. It may be for marble or for masonry; for metal or for moldings. People long gone by produced a world full of these materials, and of cognate ones, all designed and made in quasi-artistic ways. People who live now cannot, except very rarely indeed, make any new thing artistically. It is not in them to do so, and they cannot be taught it; or, if they could, the men through whose hands the work has to go while it is "on the make" would destroy, and actually *do* destroy, all artistic features which its so-called "designer" intended to put into it. Yet artistic design cannot be done without. The world wants it, and will have it, or will be gulled into believing that it has got it; and, for the sake of thinking that it has got it, will pay long prices for whatever pretends to be it.

This is how it happens that a real designer sometimes, though seldom, is rich. Either he is *really* clever, and, if so, deserves what he gets—or, much more probably, he is a clever pretender and forger, and so, instead of deserving the money, deserves, one might say, to end his days on the gallows in addition. It is not so very long since criminals were hanged for forgery—and richly, indeed, most of them must have deserved it. But if any of them suffered for what was no forgery at all, but real, rare, artistic work, then it was not they, but their persecutors, who really deserved the punishment, and, were they living, would deserve it now. To forge a one-penny note may be but a small thing in itself. The notes themselves, at least, were publicly considered to be forgeries—and a part of them were so—and the Government of the day withdrew them at last because they had outlived their reputation. If Mr. Lloyd George would require from every designer some proof that he could make, in wood, or brass, or iron, or

other materials, the things he pretends to make by the aid of others (so turning himself into a wholesale under-seller of fingers), he would be doing real service to every man's trade; and if he would, and *could*, fine (after sufficiently long warning) all the producers "who really could produce nothing," his praises, instead of being half-hearted and pot-forging things, would be, and would I deserve to be, praises high as heaven. For every man worth employment would then, in time, be employed, and those who lived by pretending to be, in employing would be punished for it, as, in the end, they deserve to be, and will be. If any time like this is about to dawn—"We may not live to see the day; But earth will blossom in the ray Of the good time coming." Then, whoever puts himself forward as able to make artistic things will be able to make them. He will not have to hunt over the world for somebody who will help him to make them, nor will this somebody then have to discover a "designer" who will first of all set out on paper his idea of what the thing shall look like when it is made. The real maker, with the materials, and tools, will set to work and make it, if it is not too big; or if it is, he will appoint a man, or men, to help him. The maker will design it—being able to do this—and sham designing will be at an end. When the Chancellor of the Exchequer, or some less busy man, can manage as much as this, a new world will be begun; and things will be growing up in it. Now, as if brought from other shores; Yet welcome as if loved for years." For this is how things used to go on when the world was a world, and before separate "designers" of work were unfortunately invented.

This, it is clear, would require more men than one to do it. Chancellors of the Exchequer (not necessarily long-tongued ones) might be appointed by the dozen or by the gross, and, to keep the House of Commons going, "doctors" with tongues long enough might be appointed to carry on the debates. But here is what somebody will say: "What has all this to do with 'Pagan pot-boilers'?" and what is a "Pagan pot-boiler," and where can we see one? The reply is that one may be seen, or was to be seen not long ago, in the basement of the Guildhall Museum in the City of London. It was put there when first discovered, not far from the spot in which it was found, in or near the street which now goes by the name of "London-wall." It seems to have been part of one of the City decorations—a triumphal arch or some such thing, erected near the end of the Roman occupation of Britain; so, perhaps, as the mother of Constantine the

Great was a Welsh lady, "pot-boilers" themselves may be claimed as originally a British product. Certainly no British product has fared so well or gone so far. At this moment, "pot-boilers," whether native or not, have gone all over the world, and stand for "Art" "from China to Peru," and especially *here*. Somebody, in the old artistic ages, made something good and admirable—a portrait, perhaps, of some plant, or bird, or animal—and people admired it and imitated it while its maker was yet above-ground. In course of time, what with revolutions and conquests and other changes, the gloss on its outside went off, and, gloss being all that most people can judge the value of anything by, it went out of fashion and became "a thing of low degree"; it was tossed aside, was broken, was dirtied, and at last was left on the rubbish-heap. Then—after ages, probably—fashions changed again, as they will do if you wait. Then, slowly and with many enemies, the forms that had been most out of fashion become for a while—it may have been for a century, or for many centuries—the forms that were most in fashion for a while. The old ornaments were dug up and mended, cleaned and painted, and one of the rich people through whom Providence, as Pope says, shows its contempt for wealth by making the lowest in intellect the chief possessors of it, built, voluntarily or by popular compulsion, a house to hold it. Then, with what was left of it, it came to be at the top of the fashion again. People thought it wonderful again, and set up fanciful likenesses of the men they supposed had made it and other objects of the same kind; and so, over and over again, the process went on. Now, the odd thing, the unusual thing, about the "Pagan pot-boilers" is to find a "pot-boiler" existing in "Pagan" times at all; for people generally began to produce "pot-boilers" only when they could produce nothing *new*, and that only happens when their favourite style, whatever it is, has been temporarily worked to extinction. Where the worker is able to invent what is new and good, he usually has the common-sense to do so; but when the mimicking-man at his elbow, or the committee which is appointed to give over him, says to him, "You must give us something fresh," or "You must do what is stale as a fresh chap piece," then he steps in with the new, and makes cheap and nasty copies of the old. Now this is exactly what our Guildhall Pagan did. Either he could invent nothing new, or he could not get it made at the price.

"referring back" the Council's recommendation.

It will be remembered that the Council's recommendation was—

Resolved: That the Agreement proposed to be made between the Royal Institute and the Society of Architects and which is now submitted to this Meeting be and the same be hereby approved. And that the President be authorised to sign the same on behalf of the Royal Institute And that after the same shall have been signed by both parties the Council do proceed to open the same into effect and do present a Petition to His Majesty's Privy Council praying for the grant of a Supplemental Charter with By-laws to the Institute set out in the said Schedule to the said Agreement as now approved.

The President first read the notice convening the meeting, and went on to say that it was in no way the wish of the Council to hurry the consideration of this matter, nor to press the meeting to pass the resolution to be proposed that evening. If members considered that it would be detrimental to the Institute to give effect to the Council's proposal, it was open to the meeting to adopt or reject them, as they thought fit. A year ago he might have attempted to persuade members to accept these proposals, but any little ambition he had then in regard to this matter had now, perhaps, passed away. His only ambition at the moment was to conduct the present meeting fairly, and it would be his earnest endeavour to do so. But, as it would probably be a difficult meeting to conduct, he appealed to their generosity to assist him in the matter. Strictly speaking, with regard to the First Schedule, the Council were advised that that had already been passed by the Institute, and was, therefore, unalterable, though it might be rescinded. But the Council thought it would be well not to go too far in the least, and as to the matter of By-laws, if, therefore, it was considered advisable to alter that schedule, he, as chairman, would offer no opposition. The President then asked Mr. Gibson to propose the resolution.

Mr. J. S. Gibson (F.R.I.B.A.) having formally read the resolution, said that probably all present had read the notice which had been printed with the meeting paper for the purpose of giving before members the policy of the Institute, which was now of some years' standing. We go back, he said, to 1906, when we first got some definite line of policy outlined, and which the Institute then determined should be followed. It was necessary that the vague feeling in connection with Registration should at some time be crystallised, and towards 1906 and 1907 a foundation was laid for these aspirations or ideals into the form of certain definite proposals. These proposals were put before members in March, 1907, and as it is possible that some present might not, in conjunction with the document now before them, have read the resolutions passed at that time, it would perhaps be as well to refresh their memories with those points which are really applicable to the present business. In March, 1907, the following resolutions were approved: "That the Institute should endeavour to obtain Parliamentary recognition of its membership; that it be made compulsory after, say, 1912, that all architects, before receiving the diploma of membership of the Institute, must have undergone a definite course of architectural education; that a temporary class of Licentiates of the R.I.B.A. should be established; that in future Fellows be elected from the class of Associates, and by the Council in special cases; that disciplinary powers of the Institute should be increased, with power of appeal." And as regards the application to Parliament for an Act, the following were suggested as the essential points which endeavours should be made to attain: To declare that it is in the public interest, to enable the public to distinguish architects recognised as qualified by a competent authority from those not so recognised; to extend the present chartered privileges of the R.I.B.A., making it the exclusive authority for the education and examination of architects for admission to the Institute; and to legalise a Scale of Charges. And there also followed a proposition, which was negatived at that meeting, to require public bodies to employ a professional member of the R.I.B.A. These

were the chief heads upon which the policy of the Institute was based at that period, and these heads were elaborated by the general body first, and then by the Council, and committees were afterwards appointed to consider means of carrying that policy into effect. From that day till now the necessary steps have been taken, one after another, to give effect to that policy. It is common knowledge to all that a Supplemental Charter was obtained. By-laws were approved by the Privy Council, and the class of Licentiate was created. That class has exceeded the utmost expectations of all who had anything to do with the initiation of this movement. The numbers at the present time are close upon 2,000, from all parts of the country, and the class of men who have come into the Institute is such that we may be quite satisfied with. After the policy of the Institute had thus far been put into operation, it became evident at an early stage that if anything was to be done by the Institute in the matter of a Registration Bill or a Bill for the Statutory Qualification of Architects, it would be necessary to take into account the fact that another Society in London, formed some twenty-seven years ago for the specific purpose of bringing about the Registration of Architects, would have to be reckoned with. It was therefore thought desirable by the Council of the Institute that we should get into communication with that body as soon as possible, with the view of ascertaining whether there was any path which would lead to the desired end of both bodies, which would remove the friction that might exist between the two societies, and which would commend itself to the members of both. It was for this purpose that the Society of Architects, at the meeting of this conference and these deliberations is laid before you to-night in the form of the Schedules and the Agreement now proposed. The Agreement and the draft Supplemental Charter now before you may be taken to be merely summaries of the First and Second Schedules, which form part of the same. It is probable that some of you will be very briefly to the Agreement, and to deal more in detail with the First and Second Schedules. There is very little to be said on the clauses of the Agreement; they are all perfectly clear, and practically explain themselves. With regard to clause 5, sub-section (b), which states that "the assets of the Society shall be applied in payment of its debts and liabilities, and the expenses of its management and dissolution, and any surplus shall be applied in accordance with its Articles of Association, and if there shall be a deficiency the Royal Institute shall make good such deficiency," members may be sure that the Council of the Institute did not draw up such a clause as that without taking proper steps, by means of its accountants, to ascertain that that liability is practically non-existent, as far as any pecuniary liability is concerned. The Second Schedule deals with the conditions on which the Society of Architects is proposed to be dealt with in admitting its members into the various classes of membership of the Institute. Taking these in detail, and beginning with clause 84 of the proposed By-laws, you will find it is proposed that a certain proportion of the Society shall be admitted into the Fellowship, not close on 1,000 members—that a certain proportion of these members, not exceeding 100, are to be admitted into the Fellowship of the Institute on the terms therein set forth. This clause deals entirely with men who have been established for a long period in the profession of architecture, who have carried on reputable practices, and the Council of the Institute felt that it was better to throw the onus of making all the necessary investigations into the conduct and standing of these men on the Council of the Society of Architects, rather than take over that responsibility, because the Council of the Society of Architects are in a better position to judge and form an opinion upon the character and standing of their members than we could ever hope to do. But it is hedged round with the necessity of getting a certain majority of votes, which, I think, will safeguard the Institute, as far as its membership is concerned. In By-law 85 we

deal with a second class of members—the members of the Society of Architects of the Supplemental Charter have attained to the age of thirty years, and have for so many years immediately preceding that year been engaged as principals in the practice of architecture; it is proposed, subject to their making the necessary declarations, which you will find printed, that they shall be admitted at once as Licentiates of the Institute; and they shall, if they are eligible, be present of their practice and their age, immediately be elevated from the Licentiate rank into the Fellowship rank of the Institute by passing a special examination. Then we come to clause 86, which deals with those members of the Society of Architects who have attained the age of thirty years. They will become Licentiates of the Institute. There are also in the Society of Architects a comparatively small number of men who have not yet attained the age of thirty years, and therefore it was impossible for them to become Licentiates, as they were under the age limit provided by the Supplemental Charter now existing, and a new provision had to be made for them, so that when they did attain the age of thirty years they might be admitted into the ranks of Licentiates. And that is safeguarded towards the end of clause 87 by a proviso, which states that any person against whom a charge, felony or any other charge may be made between the interval of his being twenty-eight years of age and his admission into the Licentiate rank. There is also another provision in By-law 88 which deals with a certain number of members of the Society of Architects—not a large number, but a certain number of persons already passed certain examinations of the Society, which are held to be equivalent to the examinations for the Associateship of the Institute; and it is proposed that these men should be exempt from those particular subjects, and that a special examination in design only should be set up for them, and if they successfully passed that examination they would be admitted as Licentiates into the Associateship, and take rank with the Associates of the Institute. There are also some students whom it is necessary to take over on pretty equal terms to those of our own Students. They do not total a great many; but, as we are dealing with a Society of such a large membership as that now under consideration, it was necessary not only to take in their full numbers, but to take in all those who had in any way entered into an educational system with them. I do not think you will take any exception to the fact that these latter men are to be taken in on the lines suggested. Practically, the proposal, as briefly as I can state it, is this: that in consideration of our taking over the whole of the members of the Society of Architects on the terms outlined, and in recognition thereof, and in view of the fact that this Institute, which is a very great benefit to us, but we get rid of the opposition which that Society would naturally bring to bear as a body formed for the purpose of carrying through the Registration movement. They have been very frank, and they have stated that if this Institute will really take up the matter of Registration, and will introduce a Bill to Parliament to secure the statutory qualification of architects, they will be only too glad to come within the walls of this Institute and to help us in every possible way. And I think it is entirely in that spirit that we must approach them, and in which we must carry out these negotiations. They are giving up their individual existence, they are preparing to give up their independence, and the Society was constituted; they are not getting, probably, everything from us which they thought they might get a few of us do not everything we think we ought to get in this world; but, at any rate, we have tried in these negotiations to find some means which would satisfy them, and which would at the same time place the Institute in a position to approach Parliament with a reasonable chance of carrying this scheme still further forward. It is a concession to me to go into detail upon the remarks of the members of the Society of Architects, and to say that the proposal is a legal one, and is a legal one, and is a legal one.

according to our solicitors' advice, which do not touch the principle underlying those provisions that I have already dealt with. And we come to By-law 93, sub-section (d), there is not much to be said. It is proposed by By-law 93 that there shall be a Committee of the Institute for the promotion of Registration of Architects, and for the consideration of all legislation affecting the Registration of Architects. In clause (d) it says, "Such Committee shall consist of sixteen members of the Royal Institute, of whom there shall be persons who at the date of the Supplemental Charter were not members of the Society, and six shall be persons who at that date were members of the Society." The purpose of this clause was to get them a reasonable amount of representation on the Committee, so as to carry this work forward. And it is suggested that instead of the wording here adopted, it would be better to say ten members of the Institute, of whom eight are Fellows and two are Associates, so that the Associates should be represented on this Committee. There is, I think, nothing in either of these suggestions which I have just called for comment, though I think will be very glad to give any further explanation needed. It is manifest that there must be a certain amount of opposition to any scheme of this kind; that is inevitable. You cannot expect an Institute, with a membership as great as ours, not to have within its walls members who give a different view of the matter than the scheme as they see it. And one purpose of this meeting is to allow you to ventilate these grievances as much as possible, and I am perfectly certain that the Council will give every consideration to what you have to say. But it must be borne in mind that this is not a question of any personal predilection at all; it is a question of policy, and whether you, as individuals, take exception to any particular part of it, to any particular By-law or paragraph, I think you would be quite wrong to let your predilections or your prejudices override a great policy. We ought to look upon this from the point of view that we are members of an Institute which is going to last very much longer than we as individuals will last; and whenever a movement like this is instituted, you will find that it will just go on well beyond the members, both old and young; it is inevitable it should be so. But the sooner you carry through a movement like this the sooner will all these injustices be relegated to the background, and in a very short time all these will have been forgotten; the Institute will have been very much strengthened, and its work will be much more effective, and the reasons for its existence will really be in the future, and not after the interests of architecture and of architects. It is, I think, unnecessary for me to tell you that it is surely very much better that all the architects of this country should be under the government of one head, rather than under two diverse heads. It would require very little argument to convince anybody that instead of working along lines that are not clear, all the architects of this country should work along lines which are not only parallel, but lines which are one, and this is only by giving away a detail which we ourselves might take some exception to that we can hope to bring two important bodies together and achieve such a result. We must not imagine for a moment that the Society of Architects has ever been prepared to give up anything merely for our sake; but I am certainly not of approach them in that spirit. It ought to be the last thing we should do to make any sort of personal references, as to status, or as we ought to conduct this discussion on the basis that this is a movement from which the personal element must be entirely eliminated. Having finished with the Second Reading, I should like to turn for a moment to the Bill. I should like to say that the First Schedule really contains the principles of the draft Bill which it is proposed to lay before Parliament as soon as possible. Do not, however, run away with the idea that this is the Bill. The Bill, of course, will have to be drawn very carefully; all its provisions must be very carefully considered,

I dare say by a Committee appointed for that purpose. Only the governing principles of the Bill are set out in the paper before you, and it is for the members of this Institute to determine those governing principles. If you wish them amended, let us know in what direction you would like them amended, and I will then attempt to understand, or curtail, it is for you to let us know as clearly as you can your mind upon the subject. Afterwards, I have no doubt, a Bill will be presented to you in detail, and you will have the same opportunity of discussing it in detail. Frankly, the Bill now before you goes considerably further than the resolution passed at the meeting in March, 1907, which I read in opening my remarks. And if you compare the two resolutions you will see that the reason why this Bill goes further is twofold. In the first place, some attempt was made to draft the heads of a Bill, the principles of a Bill, but up to the present no attempt whatever has been made to draft the Bill itself. Some time ago it was attempted to draft the heads of a Bill to embody the resolution of March, 1907, but I was assured by somebody that it was a practical impossibility to draft a Bill upon these resolutions; they were altogether too nebulous. Anything which it was proposed to achieve by means of a Bill containing only the provisions which I have read to you to-night could perfectly easily be obtained by means of our own By-laws, without going to the trouble of promoting a Bill to Parliament to change them. As one who has done some little work in the way of Registration during the last five or six years, I claim to be at least a consistent Registrationist since I took the movement up. If I understood anything at all of the debates which have taken place in this Institute, it has been that the members of the Institute did want a real Registration Bill; they did not want some nebulous, shadowy kind of thing which would govern nobody, which would do us no good. What they meant by Registration, I always understood, was that we should promote such a Bill as would practically enable us to control the whole of the architects in this country. And it was evident at a fairly early stage that the only practical method of obtaining that was in some such form as in the Bill that I now propose. I think I can briefly, but briefly, go through it. You will see, on page 3, clause 1, of the draft Bill that the Architectural Registration Authority shall be and mean the Council of the Royal Institute of British Architects, with the addition of nominees of the Privy Council. We do not know what members the Privy Council might desire to put on the Registration Authority, but you may take it from the reading of the Bill that the real governing authority, having control of the architects of this country, is the Council of the Royal Institute of British Architects. And it has required some considerable persuasion to bring the Society of Architects to that point of view. But there it is to-day, and I think we have got a long way towards establishing the Institute in the position which might be said to be in relation to architects and architecture. The second clause, you will find, defines the term Architect, and it defines it so that an architect shall be a member of one or other of the classes of the Institute, or he shall be a member of any of the Royal Academies of Arts. In the third clause you will note that every architect in the United Kingdom, Colonies, or Dominions shall be entitled to be a member of the Institute. He cannot, of course, to his being eligible by qualification. I draw your attention to the fact that this is not a compulsory Bill; it is a Bill in which the practising architect shall be entitled to be enrolled. But if a practising architect desires to remain outside the Institute, no compulsion will be placed upon him to become enrolled; he will be at liberty to remain outside the Institute, and he will not be at liberty to sell or otherwise dispose of his connection to an unqualified architect. He will be at liberty to continue his practice until he either relinquishes it or dies, the object being not to enroll all architects who have a vested interest in the practice of architecture, but only to enroll those who

desire to become members of the Institute, and who see that it is to their interest that they should become members of the Institute. You will find in clause 4 that there is a time-limit; after 1920, or some time which it is politic to decide, no person shall be permitted to practise for hire or reward in designing a building unless he is an architect within the definition of this Act, which practically means that during the course of a few years every man who wishes to practise architecture in these dominions must of necessity be a member of this Institute, because it would not pay him to remain outside the Institute; it would be impossible for him to recover his fees in a Court of Law; he would have no standing whatever in the profession, and of necessity he would naturally come into the Institute. In clause 5 there is an exception made for architects who are salaried officials, and it also states that the Schedule of the Institute shall be taken to be the standard scale for the remuneration of architects. In clause 6 we have it stated that any public body or authority spending money on the public funds for building a building, having a right to employ an architect, shall employ an architect within the meaning of the Act. That, in another form, is practically achieving the same end as paragraph (i) in the resolution of March, 1907, which was deleted—that is, to require public bodies to employ a professional member of the R.I.B.A. In clause 7 you have the collaboration of the architect and the engineer in certain works, such as bridges, railways, and so on; and in clause 8 you have a governing clause, without which it would be hopeless to expect any Parliament to give you an Act viz., "Nothing contained in this Act shall apply to the prejudice of any person who, previous to the passing of this Act, shall have been engaged in practice in designing or superintending buildings." That proviso is, of course, inevitable. These, briefly, are the provisions of the suggested Bill. It is possible that many members of the Institute may have ideas which would better these proposals, or would modify them in a way which they think would be better. I think it is open to this meeting to listen to these, and I am perfectly certain we shall give them every consideration. It is also possible—in fact, it is very probable, knowing our nature as we all do—that there shall have opposition to the first portion of the proposals of the Council as well as to the second, and it is common knowledge to us all that other proposals of various kinds have already been talked about. There have been alternatives suggested, such as making the Society of Architects an Allied Society of the Institute; but the gentlemen who proposed that have already said some of the important facts. The fact is, our allied societies at the present time cover practically the whole of England, Scotland, Ireland, and Wales. The Society of Architects has a membership which also covers to a very great extent the same territory. If we allied the Society of Architects, they would have a certain number of members in the same territory who are not members of the existing allied societies. I would get no further forward in any matter of Registration; it would complicate and confuse the whole issue, and when you went to Parliament with a Bill, you would be compelled to take in the Society of Architects, and on probably much worse terms than you can arrange to-day. Then it has been said that we should not go in for any scheme of amalgamation and amalgamation, that we are going to get an Act. I quite agree that there is a good deal to be said for that. Probably those gentlemen who advance that proposition are under the impression that we shall never get the Act, and that it would be an impolitic thing for this Institute to shall I say?—saddle itself with an additional membership of a thousand members in the future, and that the members of the Institute would therefore listen to us with more respect and grant our request. They probably think that, at any rate, if we never get this Act we need never amalgamate. But I think a little reflection will show you that the only possible way you can carry this through is the way in which you started when you decided prac-

tically to incorporate in this Institute all the architects of Great Britain, by instituting a new class. And I think it would be a disastrous step to turn your back upon that and to try now, at this late hour, to say because you will not make a special largesse of these men that you are going to throw all your work away, that you are going really to render the whole of your efforts of very little worth, because you have to give up, shall I say, certain of your privileges to obtain their co-operation and support. That, I think, would be an extremely unwise proceeding, and I am perfectly certain that the gentlemen who are sceptical about this will not go forward with any step of amalgamation until they are perfectly sure that they are going to get a Registration Act from Parliament are very likely to be the gentlemen who will fall between two stools. No doubt there are many other forms of opposition to the proposals which the Council have put before you, but I will not take up any more of your time. As far as I possibly can I have tried to put as clearly before you as I am able the proposals of the Council, so that there will be no ambiguity in discussing it. And if anything that I have said in any way offends the susceptibilities of any member, I am extremely sorry, because I think we are here to discuss the matter in the most friendly way possible. It is not the slightest good intentions that I have. If we have to find a way out, let us find a way out with good humour. That will carry us over difficult country easier than anything else.

Mr. A. Needham Wilson (A.): I think it is only right and proper that these proposals, having been moved by a Fellow, should be seconded by an Associate, because they affect the responsibilities of this body of members. But I must confess, in rising to second this, that I feel very deeply my sense of responsibility; partly because I do not claim to possess the eloquent language of my friend Mr. Gibson, nor do I feel that I have the grip of the subject that he has. But I feel my responsibility for a very much graver reason. It has been my privilege for some years to be an Associate of the Council. And as such, and in doing my duty, I feel that it has been incumbent upon me above everything else to watch over the interests of the Associates, as far as in me lay. I have endeavoured, to the best of my ability, to carry out that policy which I feel has been put upon me. Now, Sir, as Mr. Gibson has said, it is common knowledge that the great majority of the Associates are opposing the proposals which are before us to-night, and that is where I feel my great responsibility, as one of their representatives on the Council, in rising to second this resolution. It has been my duty, as well as my privilege, to be behind the scenes, to a very large extent, in all these tangled and complicated negotiations which have brought us up to the present stage. I have endeavoured to think it of those who are behind the scenes who have the smallest conception of the difficulties and obstacles which have had to be met and surmounted. Therefore I have every confidence in seconding these proposals, because I honestly feel that the Council have arrived at the only possible solution under existing circumstances. I am bound to say that so far as the opposition of my brother Associates is an honest opposition, inasmuch as they may feel, and honestly feel, that their interests are likely to be imperilled, I confess I have a certain amount of sympathy with that view. And it is for this reason: the Associates have arrived at their position by dint of having to pass through very severe examinations. It is an extremely honourable position, and it is a position that should not be assailed in any way. If I felt that the proposals of the Council menaced the position of the Associates, I say, honestly and straightforwardly, that I should have been one of the first to oppose them with the full strength that I possess. But I do not feel that the position of the Associates is menaced. Now, Sir, I think that some of the opposition arises from a certain amount of misinformation, while some of it arises from an entirely different cause. And that is—one must confess it—

that there is a certain amount of mistrust of the Council existing among the Associates. ("No, no.") I am glad to hear those words, but at the same time I know that it exists. I should like to assure those gentlemen that the mistrust of the Council is entirely wrong. There seems to be an impression in many quarters that the Council are a collection of malevolent men—("No, no.")—men whose sole aim and object ("No, no.")—is to trample the interests of the Associates under their feet. ("No, no.") Well, after the disclaimers which have issued from various parts of the room, I need not pursue that subject, but I should like to say that if that impression exists, it is entirely erroneous. Now, Sir, briefly, the Council, I take it, have a mandate. I think they have been doing their best to carry out that mandate. In doing so they have had to sweep away many obstacles. Obstacles are not swept away unless we can arrive at certain compromises. And we have to compromise, whether you are dealing with a party wall dispute or whether you are dealing with matters of this kind; and you cannot compromise unless each side is prepared to give up something. I have had to ask myself, in supporting these proposals, certain questions as affecting Associates. One was: are we Associates called upon to pay too high a price for the ultimate object we have in view? I think that if we are called upon to give up something, it is not to be measured against the ultimate good to the profession in general. It has been suggested to me that it would be a better policy if the matter were delayed. I cannot see the least object in delay, because I think if we are to take action in the matter, now is the time to strike, because we are so much in the public eye at this moment. Further, I would remind those gentlemen who suggest delay that they have hampered the Council in taking such a course, because I think it would mean keeping open the class of Licentiates indefinitely. The Council in their wisdom recently extended the period for electing Licentiates, and got into serious hot water for so doing. I think those gentlemen who suggest that proposal are on the horns of a very serious dilemma. Another suggestion which has been made is that the whole of these proposals are subversive of the dignity of the Royal Institute. I cannot see it. I see no dignity whatever in standing idle with my hands in my pockets, waiting for the disabilities which hedge us round and interfere with our practice to disappear of themselves. I want to go forward, and I do not want to wait. I want those disabilities to be swept away, not only for my own sake, but for the sake of posterity. In conclusion, I should like to make, if I may be allowed to, an appeal to my brother Associates. They want to criticise, and criticism is welcome. I, as an Associate, can assure you that genuine criticism, genuine alternatives honestly offered, will receive the most sympathetic consideration. It is wrong to think that the Council will not listen to the Associates, and that they do not want to. I should like to take this opportunity of expressing my great appreciation to the Council for all the kindness I have received and the sympathetic consideration I have always had when I have advanced matters affecting Associates. But I would ask the Associates not to let this important matter in an spirit of factious opposition. If we are to have criticism, may I beg for it to be honest criticism? For I am perfectly sure the Council will consider it sympathetically, having in view what I am sure we all have, and that is the ultimate wellbeing of the profession. (C. Stanley Peck (P.): After the lucid explanation of this Agreement which has been put to the meeting by the proposer and seconder, I feel it is not necessary for me to say very much before introducing the amendment which I feel bound to move. I have to propose, Sir, that this Agreement be referred back for further consideration. In the ordinary way, when a matter comes from the Council for consideration and after the approval of the general body of members, it comes with the full force of the Council. As a rule, there have been steps leading up to it which have clearly indicated the feelings

of the general body of members. Now, Sir, in the present case the general body of members for Registration. But on previous occasions has not been a general mandate. The Associates, as it now comes before us, suggest that the general body of members regard it as objectionable features. We do not consider them objectionable from any petty point of view of grievance, but on the broad principle that the Agreement as it stands is one which this Institute ought not to enter into. In the first place, we think that the inclusion of the Bill in the text—because it comes to that—a Bill to be presented to Parliament in an Agreement of this kind is open to very serious objection. There can be no question but that this Bill before it becomes law will receive considerable modification from time to time, and negotiations will have to take place concerning it. As it is made a consideration in the Agreement between this Institute and the Society of Architects the consent of both parties to any alteration is necessary. If from any cause the Bill is difficult, then the arbitration clause of this Agreement will come into operation. And we consider that that is not a matter which should go to arbitration. It is a very difficult thing, when a Bill is under consideration, to have an arbitration concerning it, and, therefore, we think that the Bill should be excluded from this Agreement altogether, and that the most this Agreement should contain is a definite understanding that a Bill for Registration should be presented to Parliament by this Institute at an early date. That is our first objection. The next point that seems to affect the whole body of members is the fact that by this Agreement a new class, a privileged class, will be introduced into every grade of this Institute, Fellows, Associates, Licentiates. That is to say, persons recommended by the Society of Architects will become entitled to be members of this Institute; and if from any cause our Council should object to them, they will have the right of an appeal from the decision of our Council. That is a privilege which we, the general body of members, will not accept, and which is very objectionable that the Society of Architects should be entitled to come into this Institute in a way which cannot be extended to our allied societies, allied societies which have consistently supported Registration and the Institute right through. There are many other points which will be dealt with by other speakers, but I deprecate very strongly the idea that opposition to this Agreement will have any effect on our Council. That is not the case. In the strongly underlined reference and invitation to full discussion the Council are putting the responsibility for saying aye or nay to this Agreement on the general body of members. They give us the fullest information concerning it, and details which enable us to form our own judgment, and we are asked to form our own judgment, and the responsibility rests upon us. And if we should now a precedent for this method of negotiation, that precedent will be a very dangerous one when we have to meet the very real and very serious opposition which Registration yet has to encounter. What is this opposition and this rivalry of the Society of Architects? How will it appear to the Parliamentary Committee? It is in the one hand you have this Institute. We know what this Institute is; we have Royal Charters; we are the advisers of the King in the award of the most valued architectural honour in this country; we have wide examining powers; we have a strong financial position; and we have a very large membership numbering, in the last census, considerably over four thousand, and many alliances. Now, Sir, what chance would the Society of Architects have in opposing this Institute, or in proposing for a moment that they should be the Diploma Authority instead of this Institute? I do not believe that any Parliamentary Committee would consider that for a moment. They would stand no better chance than any of the numerous societies which are allied to us. But there is other opposition which we have to encounter; and if we start by revolutionising our constitution in order to carry out an Agreement with a comparatively

small number of people, how shall we further revolutionise when it comes to dealing with the powerful opposition of other societies or public bodies? The Bill which here appears is one which, as much as I should like to see it passed, I do not think will ever be passed in this form. It will require extensive modification, and that is the time when we may have to consider what alterations of our constitution or of our Charter even, are required, but not now. Therefore I have to propose as an amendment that this Agreement be referred back for that further consideration which is the most important character of the subject requires.

Mr. Herbert Shepherd (A.): On rising to second the motion of Mr. Stanley Peach, permit me to say that I feel my responsibilities very greatly. This is the first occasion upon which I have had the honour to voice the views of other members as well as my own, and I therefore ask this meeting's respect and silence. I should like also, with your permission, to read, rather than to chance remembering my points. At the outset I think it should be made perfectly clear that whilst we are opposed in principle to the suggested agreement between ourselves and the Society of Architects, and are going to vote against the resolution of the Council which is before the meeting, we in no way give place to anyone in our respect and esteem. First to you, Sir, and our President, and, secondly, to the members of the Council whom we have helped to elect to the offices which they enjoy. Believe me, gentlemen, this is not common lip service, but a genuine expression of our sentiments. For my own part, I fear that it times this Institute asks too much of its officers, and I feel sure that every one of us deeply regrets that your own health, Sir, should have been put at risk by the arduous services and laborious duties imposed upon you. At the same time I would ask that we shall be credited with being actuated by proper motives in our action in this matter, feeling as we do that this resolution is fraught with grave danger to the best interests of the Institute. I hope it will be admitted that all that whatever has been done was with the best of intentions and in all honesty of purpose. But, turning to the last paragraph on this paper, at the end of which a self-damaging statement is set out, one cannot help feeling that the Council are likely to compete very closely with our most Gracious Patron's Judges, both for innocence of affairs and unconscious humour. Let us turn back to clause 5, sub-section c of the Statement of Policy in the preceding paper. I think the general body there should be added the words "For one year after obtaining the By-Laws." That was the definite principle laid down by the general body. It would never have been possible to have adopted that proposal "unanimously" if members had been aware that there was to be inserted afterwards in the Charter a clause which had never received the sanction of the general body. I feel that we are in some dilemma with regard to paragraph 6 of this Statement, for after the word "enrolled" might be added "and signed a declaration in which for the first time in the history of the Institute the word 'surveyor' appears." This is a matter upon which to be of our Charters, and one which, as I said, was put before the general body, and considered, and that in the nature of paragraph 6, the other institutions, with regard to the concluding sentence in paragraph 7, it is stated that the Society did oppose and retract the enrolment of 1,600 practising architects. I think, too, that a point of discussion between the fatal Bill and us has to do with the law, and that the Council, I suggest, we might call the Council, have to consider the last paragraph of the A. S. President, whose speech, I think, was the only one in which the word "surveyor" was mentioned with the object of being reported.

Mr. Stanley Peach: I am sorry to be forced to say that I am in favour of the point of view of Mr. Shepherd. I am always of the opinion that the Bill is a good one. The fact that it is not passed is due to the fact that the Council are not in favour of it.

member of the Society of Architects was not elected. I think this should have been some guide to the incoming Council as to what the general body thought with regard to the previous proposals. But that is my point. The Council were the only body of other gentlemen at the bottom of the poll.

Mr. Shepherd: What I mean is that whereas the candidate at the top of the poll for membership of Council as a Fellow polled over 500 votes, the gentleman who is also a member of the Society of Architects found only fifty supporters. My point is this: that the general body, in the only way they could possibly express approval or disapproval of the proposals which had been recently before them, by the vote at the elections for the Council, definitely indicated their objection to the policy proposed. Now let us turn to the Agreement. We are in some difficulty here at once, for it takes two parties to make an agreement, and whilst we are informed by you that this Agreement was approved with or without modification, the other party have told their members that if these proposals are not passed in their present form, they will not be called together to deal with the matter. We think it would have been more in keeping with the position and dignity of this Institute if the Society had first been asked to agree to these terms. We should like to say something to the meeting of the Registration in this room. We really feel that if you should vote by the cast of your vote carry this resolution to-night, you will put back the cause of Registration which you have so much at heart. ("No.") I feel sure that if this resolution is carried some of us will have to seriously consider whether we can properly remain members of the Institute. Others may not feel justified in so doing. I am sure that if you vote for this Bill will stand in danger of being actively opposed from within your own body. What chance has such a Bill of ever becoming law? I would call the meeting's attention to the fact that actually one of the officials of the body with whom you are proposing to amalgamate has definitely said that "A Registration Bill on the lines proposed by the Institute has no more chance of becoming an Act of Parliament than he has of becoming Prime Minister." I think the meeting will agree with him. We cannot believe that those gentlemen are aware of the facts of the case. Speaking in round numbers, there are at present close upon 7,000 practising architects in the United Kingdom. Taken together, the whole of the Fellows, Associates, and Licentiates, and the members of the Society of Architects, number only about 2,500, leaving about 4,500 practising architects outside the two bodies. ("No, no.") I say *practising* architects, and if my figures are investigated, they will be found to be justified. How can you say, in the face of these figures, you are going to obtain by this Bill the registration of the whole profession? I beg to second the resolution of the motion upon the paper.

Mr. Horace T. Bamber (A.): As I have not heard one single fact put forward this evening against the proposal of our Council that we can treat as legitimate opposition based on broad principles against the great principle adopted by us in the year 1907. It will be a great pity for us to have dissensions within our own walls. I am speaking now as an old architect, as an old member of the Institute, and I am sure that the opposition to the admission of members of another Society is what I may term a little faction, and is not in the best interests of the profession at large. The interests of the profession are mainly based on Registration. When we get Registration our status will be higher in the eyes of the public, and we shall certainly have better men join us. The interests of the public, even among the non-hereditary, it will arise in time. It will be the same with us as it was with the members of the medical profession. When they obtained their Registration Bill they had to admit chemists, possibly quacks, and other so-called practitioners, and we shall have to admit the same, though I hope we have no many quacks in our profession. I do not think that if we could in some way

bring about this amalgamation it would be very much better for the profession at large, and help to make the Institute stronger and more respected than it is now. If we want this Bill passed we must be unanimous, and we must have no opposition inside our walls nor outside; we must have the whole of the profession properly represented. As to the discussion of the details of this Bill to-night, it is an impossibility. We are here tonight only to discuss broad principles. ("No.") Let us then enter into those broad principles with an open mind, and consider the question of the Institute being an Association, but what is best for the Institute and for our noble profession. That is what I am at doing. I have a proposal to bring forward with regard to Associates and their representation on the Council; but that will be a matter to discuss later, when this big question is settled. I am sure that if the present proposals are agreed to, they will be found to be of the greatest benefit, and especially to the younger members here, therefore, much pleasure in supporting the resolution.

Mr. Sydney Perks, F.S.A. (F.): I have listened carefully to the interesting historical account of what has taken place, and I waited to hear the reasons why we should adopt the scheme. The account was very long and much in detail, but the reasons for its adoption were very few. The speaker and the second, with a childlike innocence which I envy, seemed to assume that if we made terms with the Society of Architects we could go on together united; we should get our Bill passed, and there would be an end of the matter. That assumption, I feel, is born of ignorance. There are two facts which we want to grasp to-night. The first fact is that we have nothing to offer to do with the principle of Registration. Whatever your views may be for or against it, Registration has nothing to do with the business we are here to discuss, which is to sanction the admission into the Institute of the Society of Architects; that is all; it has nothing to do with Registration; we are going on with that, with or without the Society of Architects. It has been said that you cannot make omelettes without breaking eggs; but you must not make your omelettes with bad eggs. This is a very bad egg, and we do not want to swallow an omelette which is made with it. I think this matter is of most vital importance, particularly to the younger members of the profession; I do not think it affects the older members, because their positions are assured; they have honours and high posts, and the man who would suffer the most from the proposal would be referred to as the "understrapper"; it is the young man we have to consider. The most important man in this room, from this point of view, is the latest Associate, not the President. With regard to this Bill and the possibility of getting it through Parliament, it struck me that it would be a good plan to get the help of a Council of that nature, the subject as I obtained an introduction to one of the first, if not the very first, firm of Parliamentary Agents, Messrs. Sherwood and Co., of 22, Abingdon-street, Westminster, and asked them to report to me on the Bill. With your permission it would be better if I were to read the report to you rather than tell you what is in it. They report as follows:—"We have now carefully considered the Draft Bill for the Registration of Architects which you have laid before us with reference to the points on which you desire our opinion. We do not think that the Bill would be allowed to proceed other than as a public Bill. The distinction between public and private Bills is that the latter are applicable in respect of proposals affecting particular persons or bodies; whereas the former are applicable to general legislation and matters which affect the community, or large classes of the community, as a whole. The most recent case on the question was that of a private Bill which was promoted by the Society of Apothecaries of London in 1910. The Society of Apothecaries acts under a special Charter and various Acts of Parliament amending that Charter, and the object of the

Bill was to empower the Society to conduct examinations for the purpose of testing the fitness of persons to practise in dentistry and dental surgery, and to grant certificates of such fitness. This Bill was stopped at the outset by the Speaker, with whom the decision rests. On that ground, it is believed, the shape of a matter affecting too large a class of the community to be dealt with by means of a private Bill. We are of opinion that a Bill which prohibits the practice as an architect by any member of the community unless he is registered by the Royal Institution of British Architects must fall within this ruling, and that therefore the Bill must be promoted as a public Bill. Public Bills may be introduced either by the Government of the day or by private Members of Parliament, and as we assume that this is not a matter which the Government would take up, it must be proceeded with, if at all, as a private member's Bill. The right of priority in bringing in such a Bill is allotted for by Members at the commencement of each session, and the chance of obtaining the first few places in the ballot who have the slightest chance of seeing their Bills placed upon the Statute Book. Nowadays, when the time of Parliament is so fully occupied, a private Member's Bill to which there is any appreciable amount of opposition has practically no chance of success, unless facilities for its passage are granted by the Government. The shape of extra time for debate, etc.—as, for example, in the case of the Small Landholders (Scotland) Bill of last session. We may mention that a private Member's Bill for the Registration of Nurses has been introduced on more than one occasion, but has never obtained the necessary facilities to enable it to proceed. When a private Member's Bill of the character proposed obtains a second reading, it is referred to a Committee, who hear evidence of parties interested. Counsel are not usually heard in such cases, so that the expense (providing the witnesses did not charge a fee) would be negligible. In fact, the only appreciable expense involved in connection with a private Member's Bill that is introduced in the drafting of the Bill, in printing and circulating statements in support of the proposals. With regard to the proposals of the Bill fixing the remuneration of architects according to a scale to be approved by the Home Secretary, we know of no precedent for any such provision, except in the case of certain legal charges where the work follows a regular course, and in fees for the drawing of the Bill, and in some degree of exactitude, and a few cases where the services rendered are of a quasi-public character, as, e.g., the case of the district surveyors under the London Building Acts. With regard to the proposal requiring local and other public authorities to appoint architects to advise them in certain cases, this, of course, quite unprecedented, and in our view would be very unlikely to succeed. It would be opposed by the various associations of local authorities. These associations would be certain to see that their views were strongly represented to all the Members of Parliament, who, as a rule, attach considerable weight to the views of local authorities in their constituencies. This report, then, tells us that the Bill is referred to, as admitted by the Council, has very little chance of passing, and it is interesting to note that the expense of promoting it would be practically nothing. We go on, and we are beaten by the Society of Architects, it will cost us nothing, and we shall see where we are. Bills can be introduced again and again. I think the policy of the Council has been a policy of pure funk: they have looked at a dwarf and feared it as a giant. Look at the opposition in their directions. Every local authority could oppose the Bill. Politicians would not do it. You would grant facilities to large trading companies which you would deny to the man who has the ratepayers' interests at heart. You put in a clause to make local authorities employ architects at the cost of the ratepayers, but you do not charge capitalist companies, earning big dividends, to proceed without. Apparently,

in the case of railway stations, the local authority has to employ an architect to act with the engineer of the railway company. If at Manchester a great station is to be built, the railway company employ an architect, and under the Bill the local authority must employ an architect. The local authority will say:—"Why should this come out of the rates? You give a privilege to a trading company which you should not do; you are having their work done at the expense of the ratepayer." That is not the only opposition I can see. Our Council have not approached the Surveyors' Institution nor the Institution of Civil Engineers. These are both very important bodies. They have thousands of members all over the kingdom working for the Government and for local authorities, closer in touch with Parliament than we are, and having the ear of Members. Those are the men who will say we should have gone to them. The Council ought to have gone to them and ascertained whether the Institute could count on their support. First, we could have approached the Society of Architects. But if we go to Parliament and find we have the local authorities, the Institution of Civil Engineers, the Surveyors' Institution, and other large bodies against us, what would it matter if we had added to that opposition a small society of only a few hundred members? Our Council have been wasting time. Instead of making honorable proposals to a responsible body like the Surveyors' Institution, it has been wasting its time flitting with an insignificant little "flapper." Our Council come to us to ask us to bless the union. But we are going to put our paternal foot down and say "No." I have shown good reason why we should not go on with this scheme, and we should certainly be bound to get from far more important bodies than the Society of Architects; but I have a much more important reason, and that is our Royal Charter. Royal Charters are very valuable. Some things may increase in value by being brought up to date—but a Royal Charter is not one of them. I know certain bodies that would not think of going to the Privy Council to sanction an alteration in their Charter, except for the very gravest reasons. But here I see that the Institute obtained a fresh Charter in 1887, another in 1909, and now it is proposed to ask for another in 1912. I saw a gentleman who could give me the very best advice on this subject, and in mentioning the matter to this meeting, I am bound to deal with his advice. He said: "I would like to tell you, 'Do not answer me if you think what I am asking is a question I should not put to you. But it is advisable for us to go to the Privy Council and ask for an amendment to our Charter.'" I explained to him, very shortly, what the proposal was. He spoke very highly of the Institute, and said:—"What you say is right; the proposal is to make in a certain position, to your own would mean that you would be extending the privileges of the Royal Charter to a body without one, and that is a very serious thing for you to contemplate. It might lead to an inquiry, and it is not a good thing to have an inquiry about a charter." And he left it there. I do not think this Institute should do anything to jeopardise our Charter. And when we consider, if this proposal were passed, it is so disliked that there would be a protest to the Privy Council, signed by many members of the Institute, is it worth while taking this risk in the face of so strong an opposition? When you make a bargain, you ask what you are going to get for it. We are going to get very little. It is very nice for the Society of Architects; they play the game "Heads I win; tails you lose." We don't want to join in. It has been said that we want to go carefully; we want to admit this antagonistic Society, and make friends of our enemies. If we do that we shall make enemies of our friends, because this proposal is intensely disliked by many of the younger members, who think their position is going to be damaged. It is admitted that the status of the Institute will be damaged for a time, but it is said that it will get right in the end. It is an obvious

fact that we may never get our status back. I was one of the first to advocate Registration, and I spoke in favour of Registration many years ago, and I was laughed at. I have known the status of the Institute damaged so seriously, and you should think and act accordingly of this. I do not think it would help us in the slightest if we admitted the Society. I support the amendment to take this proposal back for further consideration. Proper overtures should be made to the people who are likely to oppose us, and I think we might think of those little people afterwards.

Mr. W. R. Davidge: After the last speaker, I do not think I need touch on the legal points. The Council themselves admit that the proposals must damage a large number of members of the Institute, and I venture to say that if every member here looks into the proposals, he will find that there is no class of member which will not be damaged in some way or another. I have just received the minutes, and I think that the Council were right in their proposals. But if you look into the scheme, you will find that not only is injustice done to every class, but an outside body is to be allowed to nominate 100 Fellows to the highest class of this Institute without a murmur from anyone, either in the Council or in the general body. This same outside body is also to be allowed to transfer an unlimited number to come into the Licentiate class, and then, without a word from the general body, by the approval alone of the Council, they are to be transferred direct to the Fellowship. It is a gross injustice to all our existing Licentiates.

The President: Will you add that there has to be an examination?

Mr. Davidge: After examination. But the same injustice remains. ("No.") These who say "No" have not read it. The next point, the injustice to the Associates, has been very ably dealt with by Mr. Needham Wilson himself. It speaks for itself. But the opposition comes not from the Associates, but from the united backbone of the Institute. And the injustice does not stop there. The Students of this Institute who spend years studying for the Preliminary and Intermediate Examinations will have added to their number other students, with no greater abilities, all of whom are to be exempted from the Preliminary, and many of them from the Intermediate. What for? Is that fair? The first and most important point of all is whether all this sacrifice is necessary. Is there any professional institution that possesses registration, which has felt it necessary to crush every other professional body? Not one. The medical profession has been touched upon by a previous speaker. He knows there are many bodies in the medical profession which are united for registration purposes, but for no other purpose. We are anxious to unite with everybody who will help us in the work we have in hand. But we do not need the necessity for this amalgamation. I need not touch upon the way in which the Council themselves are divided on the point. I need not emphasise the point that this document itself bears evidence of very great diversity of opinion, and should be referred back to the Council for further consideration.*

Mr. G. L. Elkington (A): The amendment to this Agreement should be referred back. I appeal to all here to examine certain clauses in the Agreement as business men.

* Mr. Davidge, in some concluding remarks, referred to a discrepancy in the Institute Papers as to the date of King Edward's Supplemental Charter, which in the notice paper for the meeting of January 5 (p. 5) is given as "11th January, 1906," while in the Calendar (p. 40) it appears as "21st December, 1905." The discrepancy is due to the fact that the grant was received from the Privy Council that the King had approved the grant on the "21st December, 1905" (see Journal, January 19, p. 120). The Charter was not issued until the grant, and the Charter (10) now has always been cited as of that date. The letters patent under the Great Seal, however, dated "the 10th day of January, 1906," and the solicitors advising that this is the official date, it was so cited in the notice paper. For the future, therefore, the date of King Edward's Supplemental Charter should be given as 1906 instead of 1905.—Ed. R.I.B.A. Journal.

On the motion of the chairman, votes of thanks were passed to Mr. J. J. Burnet for allowing members to visit the British Museum extension on February 17, and to Mr. H. E. Blake, the contractor, for providing tea on that occasion; and also to Mrs. Arthur Cates for generously presenting a large number of architectural photographs to the Association library.

THE NEW SECRETARY.

The chairman announced amid applause that the Council had appointed Mr. F. R. Yerbury as secretary, to fill the place so long occupied by Mr. Burnet. Mr. Yerbury had been eleven years in the office, and had been carrying out the secretarial duties of the Association for the past few months, since Mr. Driver's sudden death in November last. He believed that the members would be pleased to know that the Council had now permanently elected him to the post.

HOPES AND FEARS FOR ARCHITECTURE.

Mr. F. C. Eden read a paper bearing this title, in which he sketched the successive phases and fashions that have marked the development of architecture during the last century, from the Greek and Italian renaissances, the Gothic revival, the Queen Anne reaction, the Arts and Crafts movement, and the short-lived spirit of Byzantine adaptation. Whence, he asked, was artistic salvation to come from? Was it to be Byzantine, Georgian, or Neo-Grec, and would it be controlled by French influences? Were we to account for the incessant change which in half a hundred years has witnessed as a stirring of vigorous life or as a restless craving for some new thing, a fashionable acquiescence in the unimportance of being earnest about anything for long, as the gushing of a perpetual fount of fresh ideas, or as mere idle floating with the stream? Was it inspiration or decay, the waving of a banner or flapping of a shroud? Seeing that all great accomplishment in the past had come from working steadily along a simple line of age-long tradition, it could not be seriously maintained that such rapidly-changing fashions were beneficial to art. Nevertheless, the lecturer contended, almost every passing phase had left some good behind it. For example, there was still something to be learnt from the Gothic revival. The lesson was twofold. Firstly, enthusiasm; and, secondly, definite principles, without which enthusiasm ran to seed. Still, if the principles enunciated by Ruskin and other "intolerant amateurs" were universal and sound, he thought that a certain falseness and partiality in their application had run back like a taint and corrupted the source, with the result that now there was little recognition of any fixed laws or æsthetic standard. The followers of art had become an undisciplined mob, and the practice of art had become a riot of eclecticism and experiment. The rules and precedents which were the police of art were discredited and powerless, and the artistic hooligan remained master of the situation. Again, it was the Arts and Crafts movement which emphasised the importance of a more intimate relationship between material, workmanship, and design; and though the doctrine was sometimes pushed to the point of absurdity, its influence had already been considerable and in the main wholesome. The question of the education of the architect is, Mr. Eden continued, ever with us, but what is really pressing is the education of the general public. However scholarly and efficient architects may be, they are powerless unless the outside world becomes interested and appreciative. However, there is little doubt that among educated people the knowledge of architecture has made enormous strides during the past thirty years, and that for this advance citizenship, or the collecting mania, is largely to be accounted. It does breed in its victims a feeling for form, an appreciation of good workmanship, and it creates a standard. In other words, it educates popular taste. It would seem to be partly the cause and partly the effect of the present popularity of 18th-century art, which is, at first sight, so strange and unaccountable.

Put of this I am convinced, that we have a form of architecture which is a pure vernacular, rest of the soil, straight from the "great heart of the people." It is built with entire and obvious singleness of aim, without affectation or conscious striving after beauty, and of the materials that are easiest to be got. The professional architect, that bogey of a certain school of critics, has no part or lot in it. It comes as direct from the workshop as anything possibly could do. I think to the influence of the typical suburb, of the artisans' quarter, of the speculator; in other words, the art of the jerry builder. Perhaps this is where the true hope for architecture lies. Who can tell? The main purpose of all mechanical inventions, from the printing press onwards, has been not that things may be better done, but that they may be more quickly done. The ideal of speed has supplanted the ideal of efficiency. Thus, I suppose, is the chief recommendation of

REINFORCED CONCRETE.

as a building material. What concerns us is the influence of speed, and in this way this new method of construction is likely to exert its effect upon the art of architecture. Attempts have been made abroad if not at home to originate a style peculiar to a new and untried material. We are to use it in the most direct way possible, with entire truth to its qualities of thinness, toughness, and so forth. A monolithic building should achieve such expression as it is capable of without imitating other materials or methods of construction. Let it confess itself for what it is without concealing and without shame. This is the way, we are told, to achieve character; beauty may come later. But whatever the material we are using, the natural conditions of gravity, weather, and light, remain unchanged; and our endeavours to meet these conditions cannot be expressed in ways wholly different from those of the past. Some people are sorely puzzled over the proper treatment of the wall face. One will employ acid to dissolve the matrix and expose the aggregate, another will tap the surface to remove the aggregate and emphasise the matrix. A third, following the counsel of despair, cleaves his skeleton with stone, brick, or faience, which does not seem a great advance upon the Tower Bridge type. To the man whose tastes are calculating and scientific, ferro-concrete offers a most attractive appeal; whereas, in the view of the laic and æsthetic, it is an offence of tradition, that is to say, experience methodised by the knowledge that comes with centuries of practice, will always outweigh a ton of professional theorising. If one were concerned to deprecate its use for general building purposes as likely to retard genuine architectural advance, he would do so on some such grounds as these. Firstly, that by its use it is quite possible to erect buildings of monumental scale with walls of fantastic grandeur. But it is to be enquired, in a building, there may be no restfulness; and to be restful it must appear stable. All supports must satisfy the eye as to their adequacy as well as the intellect. It may be thought that this is all matter of association; in time the eye will accustom itself to lightness of effect. There is some truth in this. But familiarity is not all. The reason why steel, whether embedded or not, can never be æsthetically satisfactory as a support, is because it is partly that it is not a natural but an artificial product, and partly that all fine architecture is generous of its materials. It is never content with a minimum of solidity or a bare margin of strength. It has been left to the engineer and the speculating builder to work that out in their several lines. In the next place, he would urge that a greatly increased use of reinforced concrete would have a disastrous effect upon proportion as we have learnt it. It is a material that does breed ugliness until they have disappeared from the face of the earth our standard remains fixed, quite apart from any Vitruvian rules or mathematical ratios. Lastly, it is in reality a method of concealed construction quite independently of any outer casing. To the eye, a beam of reinforced concrete differs in no

way from a beam without such reinforcement. Here, again, no doubt our critics would be met with the reply that so far as proportion and deception are concerned, it is all a matter of education of the eye. When that has become habituated to the new method of building, his objection will cease to have any force.

REPRESENTATIVE BUILDINGS.

Just as the church and the castle may be taken as typical Medieval aspirations, so we may safely select as the building most representative of the spirit of this industrial age the shop front. It has been dimmed into us from our architectural cradles as a prime axiom of wisdom that every edifice must be expressive of its purpose and use. What, then, is to happen when the conditions imposed are vulgar, sordid, or unworthy? If the axiom above stated is to hold good the architecture will have to follow suit; and then the strangest result ensues. To save his art from shipwreck, the skilled architect throws overboard its first principles, and his design becomes an inexpressive or lying mask. But such conditions do not hamper the careless craft of the jerry builder, who can willingly enough do so. He complies with more characteristic and expressive than that of his conscientious brother. Look at that American "store" in Oxford street. A fine design, but surely not a shop? Or we may consider another class of building common enough in large towns—the block of flats, or the oddly named "model dwellings." Here conditions which imply several stories of approximately equal height, subdivided into suites of small rooms, produce of necessity frontages in which the proportion of solid to void is much the same in a view. Add to this the necessity of building cheaply enough to show a fair percentage upon capital invested, and I ask you whether architecture so conditioned can be monumental.

TOWN PLANNING.

And now what of town planning, that ancient fad of doctrinaire and tyrant, whether monarchical or democratic? For Nebuchadnezzar had his views upon the subject no less than Mr. John Burns. Is the movement which has by this time gained considerable momentum likely to communicate any forward impetus to your art? The cottage heresy is indicative of a healthy, which has long afflicted British architecture, and that is pettiness. By this I mean not only timidity of scale—so noticeable in our larger buildings—but smallness of idea. Have we any ground for hope, based on the experiments at Port Sunlight, Letchworth, Golden's Green, and Gidea Park, that when the designer has to think in acres instead of poles, and in streets and squares instead of single houses, his ideas will be braced to a larger scope, or will they peter out in a mere multiplication of the dim and unrelated units? Still, in so far as it may tend to promote orderliness and grandeur of conception, the movement is all to the good. But in appraising its value it should be remembered that the congestion which the recent Act attempts to relieve is, after all, only a symptom. The real disease is the monstrous overgrowth of modern towns. Check that by legislation if you can; all else is merely palliative. But housing reform and the planning of stately towns with grandiose approaches to public buildings, centrally placed areas, of course, entirely distinct problems, since it is not the poor who will inhabit these pompous avenues. The latter, if a less pressing need, naturally affords greater scope for architecture. At the same time, there is a certain unpleasant kind of artificiality about the town that is consciously planned. The normal town is not planned, but grows, and that with an almost automatic, quasi-organic growth. Certainly we have no need to imitate this in our drawing-board schemes, but the town planner should note that if there be one unvarying æsthetic principle which the town that has grown with the centuries teaches it is this: the narrower the street, the taller the house, and, conversely, the wider the street, the lower, relatively, do the houses become. The

CURRENTE CALAMO.

As a result of the Special General Meeting of the R.I.B.A. on January 8, 1912 (part of which we reproduce elsewhere from the Journal), the Council have appointed a Committee to consider the whole question of Registration, with power to take evidence. The Committee consists of the President, the four Vice-Presidents, and the Hon. Secretary, together with Sir Aston Webb, R.A. (F.), Messrs. A. W. S. Cross (F.), James S. Gibson (F.), J. Alfred Gotch, F.S.A. (F.), Edwin T. Hall (F.), George Hubbard, F.S.A. (F.), Sydney D. Kitson (F.), C. Stanley Peach (F.), John Slater (F.), Septimus Warwick (F.), Percy S. Worthington (F.), W. H. Burt (A.), F. R. Horns (A.), H. W. Wills (A.), and A. Needham Wilson (A.). Mr. John Slater has been appointed Chairman of the Committee, and Mr. John W. Simpson Vice-Chairman.

What line of action with regard to the "reference back" of the "whole thing" by the meeting on January 8 this indicates, we do not know, and it is best to reserve any comment till after the next business meeting on Monday next. At that meeting Mr. Horace T. Bonner (A.) has given notice to move the following resolution:—"That it be an instruction to the Council that in any future or amended Charter, or By-laws under such future or amended Charter, an equal number of Fellows and Associates be elected to such Council, exclusive of the President, four Vice-Presidents, and Hon. Secretary or Secretaries; and that only one list of candidates eligible for election to such Council shall be printed and issued at one date prior to such election, containing the names, addresses, and qualifications of all candidates duly nominated for such election." Mr. Sydney Perks, F.S.A. (F.), has given notice to move the following resolution:—"That every speech delivered at any business meeting shall be published in the Journal at the earliest date after the meeting, subject only to revision by the author, and that the Council be requested to take the necessary steps to carry out this resolution."

With reference to Mr. Perks's resolution, it is possible some may think, after reading his speech on January 8, that "revision by the author" of his speeches, when reported, might sometimes be advantageous. It is true that a good deal of license is taken by all of us nowadays, and Mr. Perks's references to "bad eggs" and "insignificant little flappers" may have meant nothing more than some of the playful endearments at Limehouse and elsewhere by which Mr. Lloyd George affectionately commends his policy to its opponents. But, we confess, if speeches are to be reported we like to read them as they were made. On the general question of reporting all business meetings, Mr. Perks will doubtless have something to urge in favour of his proposition. Some such "business meetings" ought to be reported. Some, consultative with regard to matters under debate, might very well prejudice things they were meant to forward or complete, if prematurely disclosed.

It is only fair to say that at the meeting on January 8, the speeches of Mr. Gibson and Mr. Needham Wilson, who proposed and seconded the motion before the meeting, seem to us to have most fairly and ably summarised the reasons in its favour. Mr.

Stanley Peach's amendment was put with equal good taste and pertinent comprehensiveness. We trust similar courtesy will characterise next Monday's meeting, and that a safe and honourable road may yet be found to the amalgamation which for the present seems postponed. Members of the Institute may legitimately differ as to methods, but we cannot conceive that any considerable number of them are going to withdraw the support which, during the last few years, has brought it well abreast of the times and made it thoroughly and deservedly representative of the profession. If any such mistake is made, and the Society of Architects is to continue its separate existence, a good many of us will have to reconsider our position.

Mr. Runciman, President of the Board of Agriculture, has appointed a committee to advise the Board on matters relating to the development of forestry. References will be made to the committee from time to time, as occasion arises. The committee will be asked in the first instance: (1) To consider and advise upon proposals for a forestry survey; (2) to draw up plans for experiments in silviculture and to report upon questions relating to the selection and laying out of forestal demonstration areas; (3) to advise as to the provision required for the instruction of woodmen. The committee is a strong one, having as chairman Sir Stafford Howard, who is retiring this month from his office of Commissioner of Woods and Forests; and among the other members such respected names in the silvicultural world as Mr. E. R. Pratt (President of the Royal English Arboricultural Society), Professor Sir W. Schlich, and Professor William Somerville. Mr. R. L. Robinson, of the Board of Agriculture and Fisheries, will act as secretary. We trust real business is meant. It is discouraging, after years' talk about afforestation—the one thing, we suppose, Tories, Radicals, Nationalists, Socialists, and Labour men all agree might be done by national effort, that we are still in the "considering and advising" stage.

One of the difficulties which has been disclosed in the carrying out the Housing and Town-Planning Act in England has disappeared north of the Tweed before the sound common-sense of the Scottish Local Government Board. In the English case (at Chester) a building used as a dwelling-house was condemned, and the owner was refused permission to transform it into a warehouse, the English Local Government Board holding that the dwelling must be pulled down and rebuilt. In a recent case in the borough of Ayr, quite a different view was taken of sections 17 and 18 of the Act. The local authority having discovered that the place was unfit for human habitation, the question arose whether, when the inhabitants removed elsewhere and the building was turned into a warehouse, it ceased to be a building, "being or being part of a dwelling-house." The Scottish Board held that if the owner determined to put the condemned building to a different use, the authority has no power to prohibit such use by demolishing it, unless it is a nuisance or injurious to the health of the public or the inhabitants of the neighbouring dwelling-houses. This seems to be a commonsense rendering of the Act.

One has a horrible distrust of amateur joinery of the "home arts" sort, and equally

of the instruction books written to encourage to guide the neophyte. Even the Deacon who, as Artemus Ward told us, "died from jaspers in his house three days" when he gave averted and proceeded literally to "set up a family pulpit at home," had not realised that stage of eccentricity which blinds a man to the fact that if he must make himself a nuisance to his family and friends, he owes it to all concerned to do it as harmlessly as possible. There are, of course, hobby-hunters of sane mind who laugh as heartily as any of us at the queer literature that is offered them, and would be really thankful for something better. It is, therefore, a welcome change to find a really practical manual like "Amateur Joinery in the House," by G. A. Andley and Berthold Andley (London, George Allen and Co., Ltd., 4, Rathbone-place, 4-6,), in which excellent designs are given, which the amateur may have a shot at with satisfaction, and in which the uses of tools are described in a rational fashion. Twenty-one plates are given, embracing bookcases, tables, chairs, cabinets, plant-stands, sideboards, etc., and twenty-nine illustrations in the text.

The debenture-holders of Messrs. Brothers, Ltd., are at last to see some of their money back. The receiver and manager for the debenture-holders was appointed as long ago as June, 1909, but it is only this week that a first distribution is being made. Warrants for 10s. in the pound on the nominal amount of the debentures have been issued. It is expected that there will be a further distribution of at least 5s. in the pound. The shareholders will probably get nothing at all.

HOUSE PAINTING AND DECORATION.*

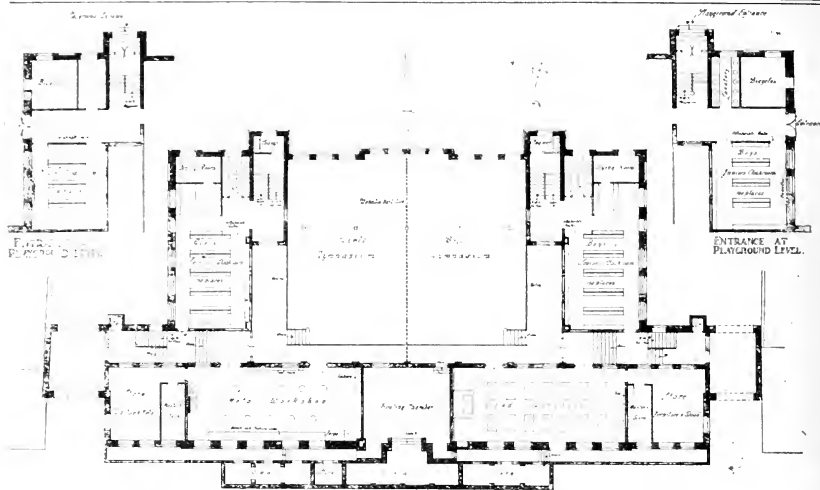
Primarily intended for "people other than professional painters" who do a good deal of painting, Mr. Jennings's book will, nevertheless, be read profitably by many apprentices and workmen, and by others of us who, with no practical knowledge of the trade, are yet, in a way, responsible for bad work, the causes of which are not apparent. It is not the "amateur" only who uses cheap and nasty materials or tools, or who does the right thing in the wrong way at the wrong time, and thereby courts failure. Take blistering, for instance, about which, and its various causes, Mr. Jennings has much useful matter. Take, again, the too common softening of paint after its first drying, due to the excessive or wrong use of driers, with regard to which the amateur, at any rate, will do well to heed Mr. Jennings's cautionary advice.

Graining, whitewashing, paper-hanging, floor-staining, bath-enamelling, and water-painting are all successively and lucidly dealt with, and a number of miscellaneous hints added which will be found of infinite service to all interested.

Prizes of £1,000, £800, and £500 are to be given in order of merit for the three best designs submitted in competition for the proposed technical school at Toronto. The assessors are Mr. Percy E. Nobbs, A.R.I.B.A., of Montreal; Mr. A. Frank Wickson, Toronto; and Professor McKay, principal of the school.

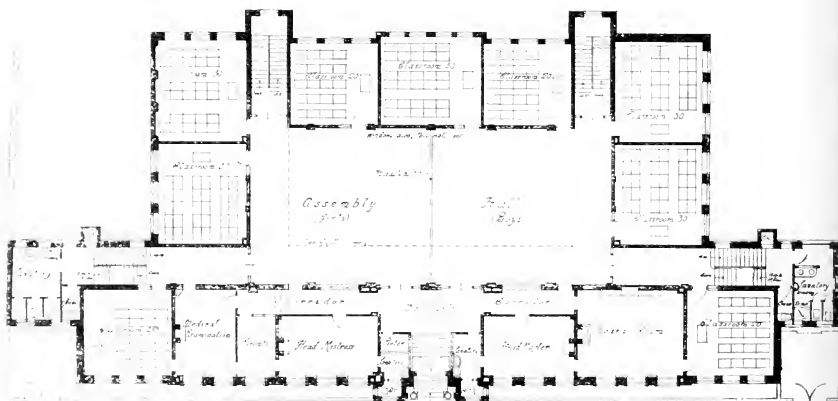
The Llandudno Urban District Council had before them on Friday night reports by the by-laws committee respecting the plans for laying out the several building estates within the urban district, which had been submitted on behalf of the landowners under the Housing and Town-Planning Act. It was decided to hold a special meeting in committee to consider the committee's recommendations.

* House Painting and Decoration: A Popular Guide. By ARTHUR SEYMOUR JENNINGS. London: Thomas Telfs, 93 and 94, Chancery-lane, W.C. 2.



LOWER GROUND FLOOR PLAN:

Model & Elevation
H. O. Ellis, Architect



GROUND FLOOR PLAN:

RAINE'S FOUNDATION SCHOOL, ARBOUR SQUARE, E.—MR. H. O. ELLIS, ARCHITECT.

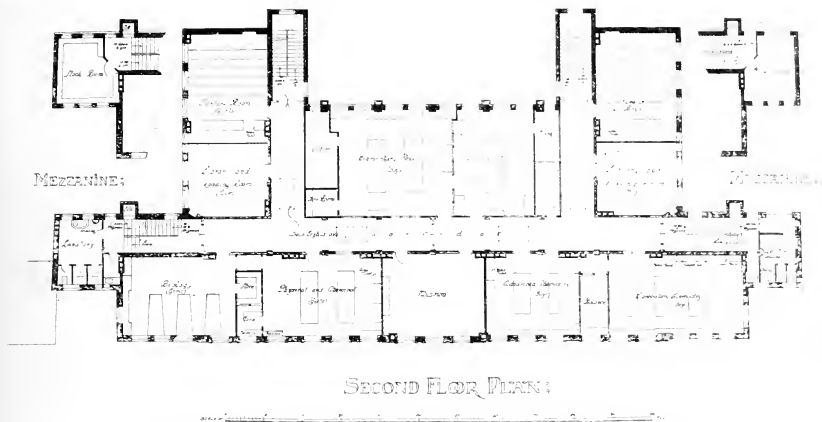
RAINE'S FOUNDATION SCHOOL, ARBOUR SQUARE, E.

[WITH ILLUSTRATIONS.]

This charity was founded in 1719 by Henry Raine. For 180 years scholars have still obtain free education. Including the foundations, 280 pupils are at present taught. Scholarships have been won among the Drapers'

Company's benefactors, and a number of pupils have entered the Technical College of the City and Guilds' Institute. The examiners' reports record a high standard of training, which has developed in scope and importance, and consequently more suitably placed buildings had to be erected. We give a view and plans of the building, which, with the site has involved an outlay of £35,000.

The Mercers' Company helped with the site, and the new accommodation provides for 500 scholars. Compactness of plan marks the arrangements, with classrooms round the assembly hall, half of the classrooms obtaining morning sun and the remainder afternoon sun. Sixteen square feet per scholar, with single desks, are allowed, the farthest pupil being within 19ft. of the



RAINE'S FOUNDATION SCHOOL, ARBOUR SQUARE, E.—Mr. H. O. ELLIS, Architect.

nearest window. The assembly hall is 84ft. 6in. by 36ft. 6in., giving 6ft. per scholar. All the cloakrooms are on the ground floor. Supplementary w.c. and lavatory provision is made on each floor in wing blocks. The front entrance and administrative rooms are separated, and can be worked independently of the school. The museum, on the second floor, can be entered from either school. The two sexes are specially provided for in a distinct way. The front elevation is in red brickwork of broken colour, with Portland stone dressings. The plinths are of purple brick. Reinforced concrete is used for the flooring, covered with wood blocks. The contractors are Messrs. James Smith and Sons, of Junction Works, Norwood, the cost being £22,500. Mr. Herbert O. Ellis, of Fenchurch-street, is the architect.

DEFECTS IN BUILDINGS AND THEIR EFFECT ON VALUATION.*

By HAROLD GRIFFITHS, A.R.I.B.A.

The valuation of buildings, as performed by the architect, is probably regarded by the auctioneer as being of a somewhat distorted character, as, judging from the point of view of the latter, it would seem natural that too much attention would be paid to the condition and the intrinsic structural value of the building. Conversely, perhaps, the architect may be forgiven if, from his standpoint, he concludes that the member of the other profession often arrives at an inaccurate valuation on account of a disregard or an improper estimate of the condition of the structure. This may account for the wide difference in the opinion of auctioneers when submitting their valuations of properties to arbitrators and to the Courts. Be it understood that it is not claimed here that more unanimity would be found among architectural surveyors, but it certainly would seem that a middle course would be attended with better results. It suggests itself to me that when the auctioneer has been instructed by the client to value a building which is for sale, the dominant factor of valuation basis is—"What would be the annual rental, and how many years' purchase would the property be worth?" It is not suggested that age, condition of repair, position, prospect, marketableness, probable improvement or depreciation in immediate surroundings, or the permanent or temporary usage of the

buildings are not taken into consideration, but does the auctioneer in such circumstances pay any very serious attention to the nature of the structure, and of the defects which may—nay, nearly always do—exist in every building?

There are two matters which govern defects in buildings—first, the material, and, secondly, the workmanship. The auctioneer, without necessarily possessing a thorough knowledge of building material, should have sufficient acquaintance with the subject to enable him to form a general opinion as to whether good and proper material has been used. If, for instance, he observes during dry weather a flank wall darker in colour than the general brickwork, and upon closer examination he finds it damp to the hand, it is quite possible that under-burnt or porous bricks, or bricks of a cheap or low quality, have been used, and he should not only look out for dampness in the interior, but realise that bricks which absorb water so readily will, when affected by the frost and sun, erode and crumble away, destroying at the same time the mortar joints. This process will go on year after year until the wall is destroyed, unless it be refaced or protected from the influences of the weather. It is apparent that such a wall must necessarily reduce the value of the building. Let us take another instance, where one building has been erected with good bricks, but laid in lime mortar of poor quality. The joints in this case will in time be affected by the wet, frost, and sun, and the walls will eventually have to be repointed in order to keep out the damp—a rather costly, dirty, and inconvenient operation. But, on the other hand, if a precisely similar building has to be erected or pointed in cement mortar, no repointing will be necessary, and the brickwork will be always dry. Surely, then, the value of the first-mentioned property upon which money would have to be expended has a less value than the latter building, which, as far as its outer construction is concerned, will not necessitate any expenditure. Then the value should be able to distinguish between lime mortar and cement mortar. This can be done by applying the point of a pocket knife to the joints, and if the point easily presses into the joint, and the material becomes disintegrated and has a whitish appearance, it can almost certainly be concluded that a lime mortar of poor quality has been used, for if the joints be pointed in cement mortar, they become so hard and metallic that the point of the knife would make no impression upon

them. It must not be concluded from this that all lime mortar is defective. It is quite possible to procure lime which will make almost as good a bedding material as cement, but what has been said refers to the properties of the limes of average commercial quality in general use in buildings to-day. We have many existing examples of buildings, centuries old, built in lime mortar of most excellent quality, but in valuing a property of recent construction it is contended that a building erected in cement mortar possesses a higher value than a similar building, the bricks of which are laid in lime mortar. Defective workmanship is rather more difficult to discover. If the plumber has not properly flashed the roofs, the tiler not sufficiently lapped the tiles, or the bricklayer not properly formed the flues, then such defects are very soon discovered; but there are also hidden defects in workmanship, caused either wilfully or by carelessness, which are not always apparent even to an "expert" skilled in building construction; and it would be unfair to suggest that the auctioneer should commence to probe about into the unseen in an endeavour to discover defects which do not meet the eye. Time, and in some instances, perhaps, the "agreed fee," would not permit of this; but the auctioneer should be capable of casting a scrutinising eye over every part of the building, so as to satisfy himself there is nothing radically wrong, and nothing likely to affect the stability of the structure, however rough the work may be in finish. The defects most common in buildings are—Damp; settlement; minor defects affecting the comfort and health of the occupants.

DAMP.

Damp rising from the ground generally finds its way into a building from one of two causes, either by rising from the earth under the floors and thence through the joints in the floor-boards and skirtings, or by being drawn or sucked up by the porosity of the material of which the walls are composed, accelerated by the higher temperature of the rooms naturally attracting it. In the former case a layer of cement concrete 4in. to 6in. thick laid over the whole surface of the ground under the rooms is a good preventative.

In the case of damp rising up the walls, the bricks and stone used in the construction of most buildings, in addition to being capable of absorbing a considerable amount of water, have the power of capillary attraction, owing to their porosity, varying with

* Read at the ordinary meeting of the Auctioneers' Institute, February 21.

The density and weight of the brick or stone. For instance, a soft, light, under burnt brick will absorb more water than a South Staffordshire blue facing brick. Consequently it is a great advantage to have a structure built of hard, dense bricks or stone, their power of absorption and of capillary attraction being much less than that of soft material. If damp exist owing to the absence of a damp course, the lower part of the rooms on the ground level, and the stained dark patches on the paper will peel off, the wall will shale, or the panelling will rot, and the plaster decay. Any of these are sure signs of dampness. But if the foundations be wet, no brick or stone in itself will prevent the damp rising and finding its way into the lower rooms. What is required is a "damp course"—that is, a layer of some material impervious to moisture, such as, for instance, one of the natural bituminous or slates bedded in a horizontal position. Usually the property owner himself if a damp course has been provided, by inspecting the exterior of the property. He will observe just above the ground level, a thicker course than the general joints of the brickwork.

When damp finds its way through the outer walls to the interior of the building, the defect is due either to the porosity of the bricks or stone, bad mortar, or to the fact that, owing to the exposed position of the building, the walls are of insufficient thickness to resist damp. In such case, if the defect be so serious as to be inconvenient or detrimental to health, then it is necessary to a proper valuation to assess the cost of cementing the exterior walls, roughcasting them, or providing special drainage. However, in the case of natural treatment, such as a dry wall, no allowance should be made for anything being done to the exterior, the inside of the walls can be stripped to the brickwork and rendered in Portland cement. This will exclude the

Portland cement. This will exclude the damp from the rooms, but the wall itself will always remain more or less damp, as the drying agent on the inside will have ceased to exist, and, as far as the brickwork itself is concerned, its case will have been aggravated.

Dampness or wet coming through the roof is not itself a very serious matter if attended to at once, but it soon makes a great show. Water, spotting with every rainfall through a broken or missing slate or the wall, by the absorption of the plaster ceiling, soon covers a large surface, with the result that the key of the plaster becomes broken, and—down comes the ceiling.

SETTLEMENTS.

Cracks in walls and ceiling, the distortion and subsidence of arches, and the binding of doors and windows are practical signs of settlements. Settlements are either temporary or continuous. To ascertain whether settlements are temporary or continuous, the following plan may be followed: A short length of stamp paper across the crack and note thereon the date. In the course of time, should the paper break, then it is a conclusive proof that the crack is widening, and by reinserting the paper the rate of settlement may be ascertained. If, after a period of three or four months the paper remains unbroken, then it may be concluded the settlement will go no further, and the cost of cutting out the cracks, filling in, bonding, and making good can be arrived at. Temporary settlements are frequently caused by a slight unevenness in the stratum on which the weight of the building naturally takes its bearing. A somewhat similar defect in foundations may sometimes be caused by the falling in of loose earth and clay from the sides of the excavated trenches. The subsidence of the stratum beneath the subsoil is also a common cause of settlements in buildings.

Continuous settlements are also caused by: (1) unequal sinking of the foundations; (2) weakness in superstructure. If a building superimposes an unequal weight on yielding foundations, such as the solid brickwork under chimney breasts, or heavily-loaded piers, or a portion of the building carried to a greater height than the rest, the

It may also happen that the weight from the structure is equally distributed over the whole foundations, but that the building is erected partly on a yielding and partly on a non-yielding bottom, such, for instance, as soft clay and gravel. This class of foundation is not sure, and the buildings on such foundations are almost bound to appear quickly tilted. The only way to deal with them would be to underpin the parts on the soft clay, i.e., to excavate under the existing foundations to a depth which either reaches a solid bottom or to such a depth as will insure the foundations being unaffected by the expansion of the soil during the summer months, and the traction of the summer's sun. This excavation should then be filled in, either entirely with good concrete or part concrete and part brickwork, well and securely pinned or grouted up to the under side of the existing foundations. Vibration is a common cause of settlements in buildings, due sometimes to the wind, and sometimes to the passing of heavy loads over the roofs or under the surface. Weakness in the superstructure is also a factor in causing settlements in buildings—such, for instance, as improper or insufficient bracing of the roof timbers, which allow them to spread at the feet and push the upper part of the walls out of the perpendicular. Floor joists, if they are not properly braced, will give under the loads and vibrations put upon them are a consequent cause of fracture in weak walls and partitions, and the plaster ceilings in such cases are a source of annoyance and expense. Although it might be somewhat difficult for the auctioneer, without assistance, to assess the cost of rectifying such weakness, it should be borne in mind that, if a defect should influence his valuation

MINOR DEFECTS AFFECTING THE COMFORT
AND HEALTH OF THE OCCUPANTS.

Builder's debris left in flues is a very frequent cause of annoyance in new buildings. Leaky pipes often cause much inconvenience. Storage cisterns in roofs and cisterns to water-closets should be examined to observe whether they are provided with proper overflow pipes, carried through the roof or wall, so that in case the valve ball breaks the water will have a ready outlet. If the overflow pipe can carry away the leakage, and so prevent the destruction of the decorations and flooding the building from the cistern overflowing. It should also be determined whether the water service from the company's main is either protected, where under ground, by being wrapped in felt and placed in a double pipe, or if it is under the surface to prevent their being frozen. A depth of 2 ft. 6 in. in this country is usually found to be sufficient.

The hot-water circulation is a matter usually very lightly dealt with, and its existence is only brought to light when the tenant or owner takes possession of the property. The valuer should satisfy himself that the flow and return pipes between the boiler of the range and the circulating cylinder are of a size to suit the general size of the range, that they are laid so as to rise continually till they connect to the cylinder, and that all bends are easy or rounded (that is, that no right angles occur in any of the pipes). The circulating cylinder should be of sufficient size for the class of house in which it is supplied, and the closer the cylinder is fixed to the boiler of the range, the more rapid and successful will be the circulation, and, consequently, the hotter will the water keep when once heated. If there be considerable distance between the boiler of the range and the circulating cylinder (as, for instance, when the latter is fixed on the top floor), heat the linen up to the circulating cylinder, and then come down, and there is, therefore, an unnecessary length of circulating pipes always cooling down, which very soon affects the temperature of the water after the fire

VACATION ARCHITECTURAL
CLASSES AT THE UNIVERSITY,
SHEFFIELD.

Soon after the formation of the Department of Architecture at the University of Sheffield it was considered advisable to organise vacation courses at places in which buildings of architectural importance could be studied by means of the making of sketches and measured drawings, and to make attendance at a certain number of these courses compulsory for students working for the Diploma in Architecture awarded by the University.

The lecturer is Mr. W. S. Purchon, A.R.I.B.A. The object of the courses is the study of buildings of architectural importance by means of the making of sketches and measured drawings in situ. The Eastern Course generally begins about the end of March, and lasts from a week to ten days, while the Summer course starts about the end of June and continues for three weeks to a month. The advantages of these courses are that permission to sketch and measure a series of important buildings is obtained, all difficulties as to the use and hire of ladders, etc., are avoided, and that an instructor is present with the students to give such advice and guidance as may be needed. Up to the present only local students have attended the courses, but it is thought that they may be of value to other students of architecture. The students make their own arrangements with regard to rooms and board, but particulars of suitable accommodation are supplied to them. The fees payable by students, other than those attending courses at this University, are 15s. for the Eastern Course and £2 2s. for the Summer Course. The price of the fees exempts students from all charges for admission to buildings, hire of ladders, etc.

admission to buildings, hire of ladders, etc.

Easter Courses have already been held in Lincoln and Stamford, and in Summer courses will be held in Cambridge and London. The Easter Course will be held in Bath this year, commencing on March 23, 1912. Permission to sketch or measure at several important buildings, including the Abbey, Prior Park, Ralph Allen's Town House, the Banqueting Room of the Guildhall, and No. 24, Queen-square, has already been obtained.

It will be paid for by the students belonging to the various Stone Firms, and at the beginning of the course a lecture on the architecture of Bath will be given by Mr. Mowbray A. Green, F.R.I.B.A., vice-president of the Bristol Society of Architects. For the Summer Course, 1912, a sketching and measuring tour in Northamptonshire will probably be arranged. Students wishing to attend either of these courses should obtain an application form from the lecturer and submit it to the registrar, with the fee.

The Great Yarmouth Board of Guardians have adopted plans by Mr. A. S. Hewitt, A.R.I.B.A., of that town, for a new workshop infirmary estimated to cost £3,700.

The death took place on Sunday, at Lady-
made, Launceston, of Mr. William G. Vowles,
who for nearly half a century was well known in
Bristol as an organ-builder. Mr. Vowles, who
was in his 87th year, was the son-in-law of Mr.
J. Mundy, who succeeded Mr. John Smith, sen.,
the founder of the business, 98 years ago. The
deceased retired some while since, and the busi-
ness was turned into a company, under the name
W. G. Vowles, Ltd.

Our Illustrations.

NEW HEADQUARTERS FOR THE CONSTABULARY OF THE NORTH RIDING OF YORKSHIRE, NORTH-ALLERTON.

These new headquarters for the constabulary of the North Riding of Yorkshire have been erected at Northallerton, on a site adjoining the county hall, as shown by the accompanying plans. The buildings embrace residences for the deputy chief constable, one clerk, and one married constable; quarters for single constables and recruits, cells for prisoners, weights and measures offices, stabling, etc. The walls are of local red hand-made close-kiln bricks, and the roofs are covered with green Westmorland slates. The buildings and furniture were designed by, and carried out under the supervision of, the county architect, Mr. Walter H. Brierley, F.S.A., of York. Mr. Paul Rhodes, of Leeds, was the contractor for the building.

RAINE'S FOUNDATION SCHOOL, ARBOUR SQUARE, E.

(See description and plans on pp. 304-5.)

THE PALACE EYE, WELLS, SOMERSET—BATH ABBEY, WEST FRONT.

These two sketches, by Mr. E. Garratt, of very interesting subjects, need but little description. The market place at Wells was planned by Bishop Beckington, about 1443, and many traces of its origin can still be seen. The Femelles Porch is the other of the pair of gates leading to the Cathedral Green and Bishop's Palace. We give the latter gateway, known as the Bishop's Eye. Beckington's architecture bears his punning rebuff, a flaming *beacon* and a *tun*, and the designs exhibit his taste.—The seven-light window of the west front of Bath Abbey is, of its kind, no doubt a fine example; but the most curious features of this facade, of course, are the angel ladders in the flanking turrets. These are said to represent the dream of Jacob, or, as others have urged, were intended to commemorate the vision of the founder, who was inspired to build the church by a commission from Heaven, brought by angels from on high. These figures long ago were mutilated, and are headless. More angels occur in the gable over the window, standing on corbels. The facade is dis-

tinctly a genuine termination of the building behind it. The turrets contain staircases. The tops are modern, and were lowered. The battlements are floridly treated in varied pattern of detail. Above the west portal the arms of the bishopric impaling Montague. On its responds are figures of Prior Berke and Bishop King, set under tabernacled canopies. Some say these figures represent SS. Peter and Paul, to whom the church is jointly dedicated. Both drawings formed part of the series for which Mr. Garratt was awarded the Pugin Studentship at the R.I.B.A.

NORTH WILFORD CHURCH.

This Church is to be erected at North Wilford, a thickly-populated district on the outskirts of the city of Nottingham, and is to take the place of a mission church which has ministered to the needs of the neighbourhood for the last ten years. The plans were selected by the assessor, Mr. W. D. Caroe, in a recent competition. The site is on a portion of a large area of reclaimed land in the valley of the river Trent, and known formerly as the Meadows; the natural level of the ground is about 10ft. below the street level. The small amount available, taking into consideration the foundation difficulties, for the erection of the church—viz., £6,000—necessarily kept the design simple in character. The church is planned with nave, north and south aisles, north and south transepts, choir vestry, priests' vestry, morning-chapel on the south side of the chancel, baptistery at the west end, and organ chamber over the choir vestry. The main entrances are on the north and south side at the west end of the church. Additional exit doors are placed at the east end of the north and south aisles. The heating chamber is placed under the vestries, and will be some feet below floor level. Callender's damp-proof sheeting will be used to make the chamber water-tight. The walls externally will be faced with red brick 2in. thick, with Ancaster stone dressings; the walls internally will be finished in cement stucco-faced. The arcade piers, arches, and stone dressings will be in Bath stone. The roofs will be constructed in pitch-pine and deal. The boarding of roof will be in Carolina pine and covered with hand-made, sand-faced tiles on double lathing, with an under covering of Ruberoid. The flooring under the seats and vestries, etc., will be wood block. The aisles will be tiled; the chancel, sanctuary, and baptistery will be

in black and white marble. The ground will be by the bye set aside for a future extension, which may be taken as a nucleus for a new place of worship, and a model of the exact verticality of the apex of the church. The architects are Messrs. Ernest R. Sutton and F. W. C. Gregory, of Boulton House, Nottingham.

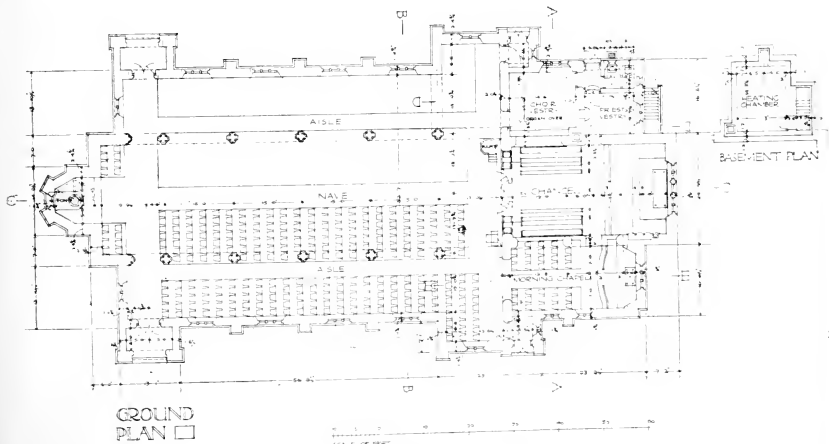
OBITUARY.

The death occurred on Saturday, at his residence, Oak Hall, Bishops Cleeve, after a fortnight's illness, of Mr. George Edward Fraydett, F.S.A., F.R.I.B.A., in his eighty-eighth year. He was the son of the Rev. A. B. Fraydett, rector of Little Hallingbury, Essex, and was born in 1824 at Chert House, where his father was Rector. He was educated at Charterhouse, and for fifty years was architect and supervisor of the Charterhouse estates. He was the oldest Carthusian, and was present at the recent centenary banquet. Many of the ancient parish churches in Herts and Essex came under his inspection for restoration, while from 1862, when he built his first church, All Saints, Bishops Cleeve, he was the architect of a large number of churches, rectories, and schools all over the country. He at one time held a commission in the old West Essex Yeomanry Cavalry, and was the oldest surviving officer of that body. The funeral took place at Little Hallingbury on Wednesday afternoon.

The stone used for the restoration of St. Saviour's Cathedral, Southwark, under Messrs. J. O. Scott and Son, was the Chulmar stone, and was supplied by Messrs. T. T. Gething, and Co., Ltd., 201, and 203, Warwick-road, Kensington, W.

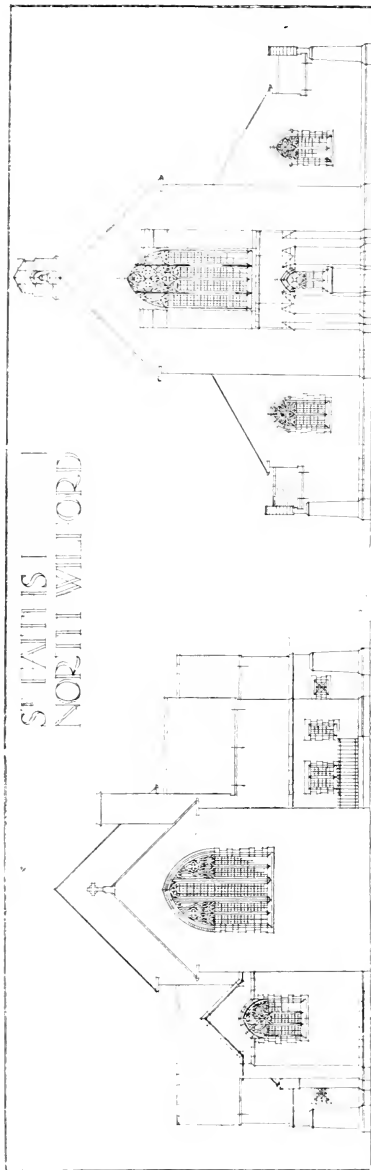
The Bishop of Winchester attended the foundation-stone laying of the Bernard Wilson Memorial Church, at Milton, Portsmouth, on Wednesday. The building, when completed, hold between 800 and 900 people. The main portion of the new building will cost £7,500, of which £4,400 is promised.

At the next meeting of the city council of Birmingham, the finance committee will recommend the appointment of Mr. Sydney J. Lancaster, valuer to the Blackburn Union, as valuer under the corporation to the new Birmingham Union. The salary of the new post is £200 per annum. Mr. Lancaster went from West Derby, Liverpool, to Blackburn two years ago in succession to Mr. F. J. Ruddle upon the latter's appointment to a position in the Treasury Department of the Government.



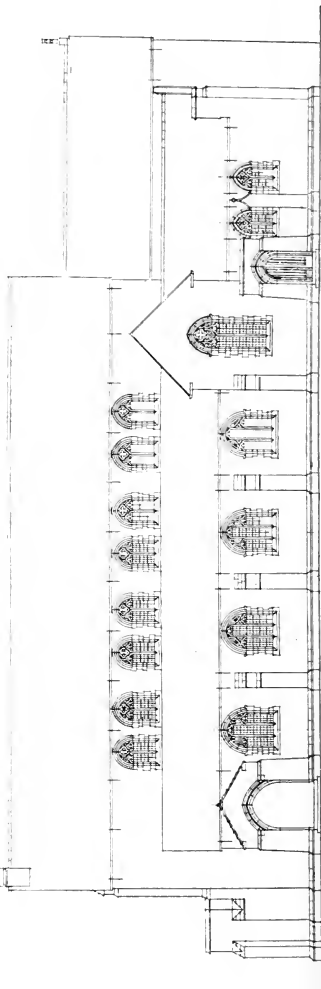
ST. FAITH'S CHURCH, NORTH WILFORD.

S' PATRICK'S
NORTH WILFORD

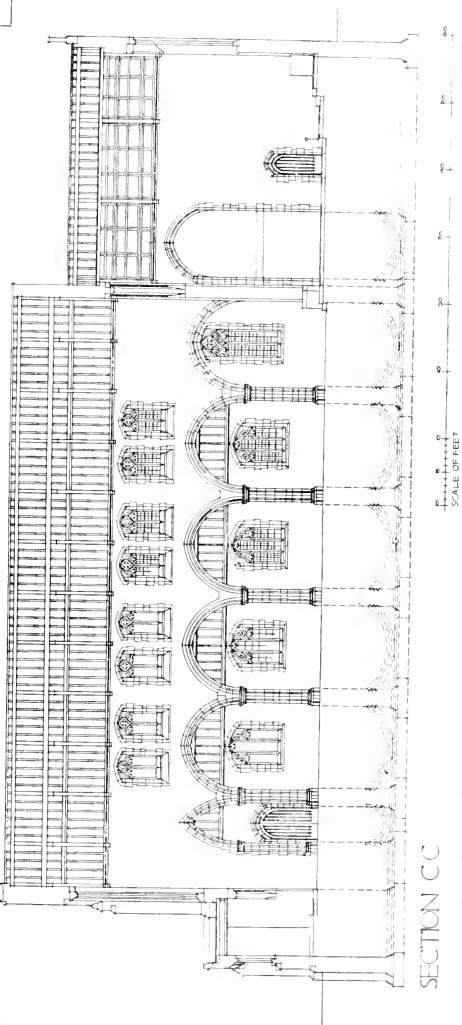
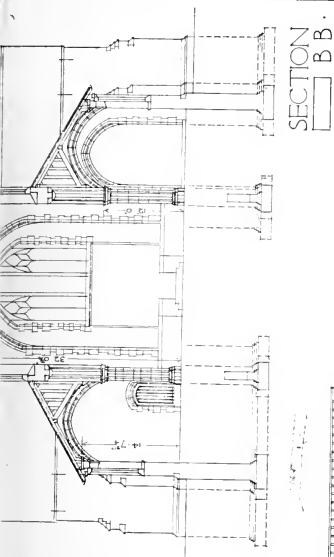
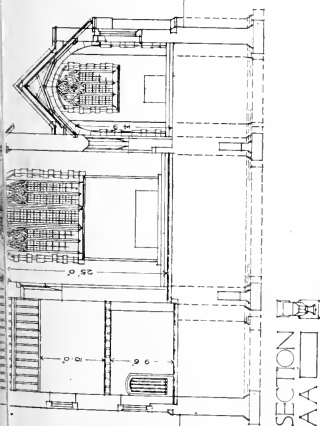


EAST ELEVATION

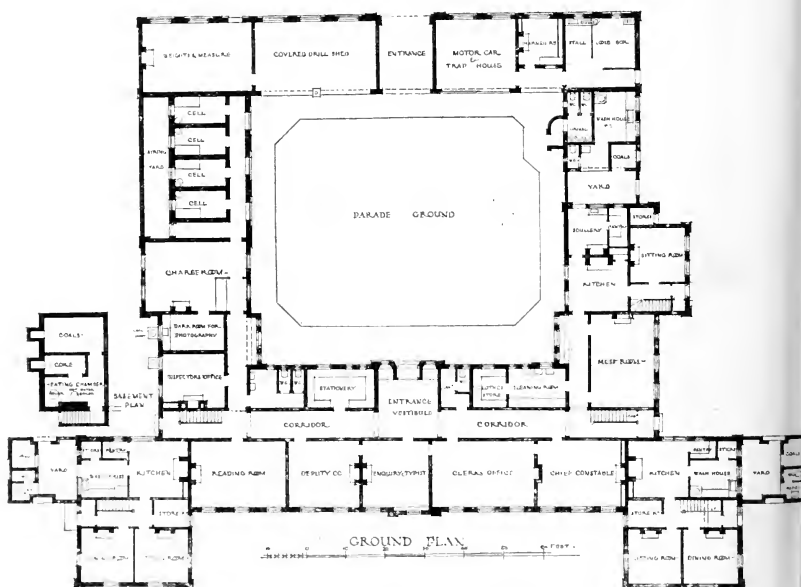
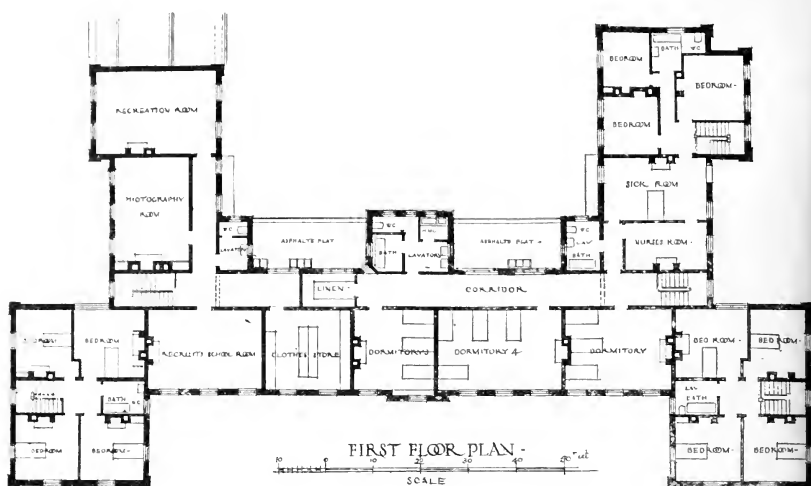
WEST ELEVATION



SOUTH ELEVATION



SELECTED DESIGN.—Messrs. SUTTON and GREGORY, Architects.



NEW HEADQUARTERS FOR THE CONSTABULARY OF THE NORTH RIDING OF YORKSHIRE.
 Mr. WALTER H. BRIERLEY, F.S.A., Architect.

THE TENDENCY TOWARDS UNIFORMITY IN COMPENSATION FOR AGRICULTURAL IMPROVEMENTS.*

By LESLIE S. WOOD, F.S.I.

To treat of the subject of agricultural customs, and to lay down any principles as to uniformity, needs a brave heart. But as the time has very rarely been found for a discussion on the subject, and there is no other place for such a discussion than within these walls, it is hoped that, while you do not spare your criticism, you will realise that we are dealing with a very complex subject, and that the main object to be achieved in this paper is to point out various aspects of a difficult problem with the hope that a free discussion will lead to a clearer understanding of it, and help in some measure the movement now on foot to bring about uniformity in farm valuations. We must be very clear in our minds in the first place that there is a difference between custom pure and simple and more modern customary payments. In customs as far as we can tell from the evidence, we have all started from a common origin, and the great variations we have now are developments from the original conditions, proceeding upon normal and recognisable lines. Uniformity in custom could only be attainable by reducing all customs to their original form. We have had, and there probably are still advocates of this at the present day, but we shall see how far this is possible. Customary payments, on the other hand, are almost entirely arbitrary bases for compensation fixed at the will of valuers' associations and similar bodies, in order to deal with the demand for payment for the unexhausted values of manures and feeding stuffs. The agitation for this rose in the earliest half of last century, and culminated in the Agricultural Holdings Act, 1875, although it did not receive universal attention until the passing of the Agricultural Holdings Act, 1883. These bases fixed arbitrarily can, in the same way, be altered arbitrarily, and the valuers' associations can agree upon the best scale of compensation, there is no reason why it should not be universally adopted. At the present moment attention is more particularly riveted on the adoption of uniform scales of compensation for feeding-stuffs and manures. But before we deal with that it is well to look at the old original custom, because that, after all, is the structure upon which everything else is built, and it has, in some cases, been bearing upon the application of our comparatively new methods of compensation. It is difficult to give a definition of true "custom." Cooke states that "the custom of the country is the common law of agriculture." But this definition, although it is safe and probably correct, it conveys to the minds the idea that it is immutable, and consequently, there are many men who will not admit that a custom can change. They are of opinion that the varying customs, as we have them to-day, are in their original form, and in that form they must be continued for all ages. But the fact is that the time there is no question whatever that the customs have changed, and still are changing, and, consequently, it is interesting to consider with this definition his further words, "Custom . . . so far, at least, as it governs the course of good husbandry, is not that immutable, unvarying, certain, and reasonable general usage, which is known to the law as a custom." The words of the same author in 1850, when he compared the customs of that time with those published in 1828, confirm the fact that agricultural customs have changed, and Messrs. Kennedy and Grainger, writing in 1828 of the customs in the Home Counties, refer to high valuations, said: "None of them have any pretensions to antiquity." If we go back to some fifty years prior to the work of Kennedy and Grainger, say 1775, we reach the limit of our definite knowledge, and no agricultural custom as far as I know, and no law case, shows any appreciable light upon the

subject. It is, therefore, necessary to construct a theory, and from the evidence we have by comparing the changes in custom over a period of nearly a hundred years, and by showing the variations on maps, I have come to the conclusion, with very good reason, that in the olden days, some time prior to the limit of 135 years, it was the customary for tenants of farms to remain in their holdings after the expiration of their term and consume the hay and straw of their beasts, and feed or tread the straw out dung, and leave it all for the income without any payment whatever. There were, in fact, no valuations in those days, and no valuers, as Cooke describes them, "audacious in fabricating claims." This holding over in order to feed and convert the hay and straw necessitated a dual occupation of the house and buildings, besides some of the grass land, and caused an inconvenience which could only be remedied by a farm valuation. By this was determined the sum that an incomer should pay the outgoing in order to enter into immediately the possession of the house, buildings, and land other than stacks and dung, the corn was not threshed. Now, what was the value of the value? He simply had to estimate what the outgoing tenant would lose if he went out at the end of the tenancy instead of holding over to feed and consume his hay and straw. To effect the tenant lost, and the value had to estimate the feeding value of the hay and the consuming value of the straw; the manure—that is to say, the manurial value of these two—had to be left free of charge. This is the position of the present time over the greater part of England, and this, I submit, is the original custom in its simplest form, and if we are to attempt any uniformity in custom we must work back towards this original form. In those early days, apparently, it was not found a difficult matter to decide upon a basis for the feeding value of hay, for there is very little variation in method anywhere nowadays. The price is always taken as the basis, and often the feeding value is reckoned at two-thirds of the market price; but in some countries it is fixed by the Valuer Association year by year, according to the price of hay. But when we come to straw we find that there is a considerable variation. In some districts it is a fixed proportion of the market price, in others it is a price per load, which is a very little year by year; in many countries it is estimated at a price per acre, with but slight variation; and, again, in three or four counties it is reckoned at a fixed sum per quarter threshed, or, if the incomer does the threshing, and clean and carry the corn to market, it is considered an equivalent, and the straw passes without payment. All these apparently different customs are only several forms of the same elementary custom, so it would be no insuperable difficulty to transform them all into one method, if the Central Association were to agree upon the best method. Of course, if the system of valuation were changed, there would always be the tenants, who would point out that they had lost material in the consequent, because a good or bad straw year just mixed with the difference whether their old system favoured them or not. But averaging the weather and the straw crops, the chances of a tenant gaining or losing under a uniform system would be about even.

Now, if the variations in customs had gone no further than this, we should still have no trouble in fixing a uniform method of valuation; but, unfortunately, in some parts of the country the basis of valuation has been extended, so that the tenant has a larger stake in the land, and it would be impossible to reduce these to uniformity, unless the landowners bought the land, and the tenants, as all tenancies were endowed with their own right by custom; but this is impossible. But we will see how far it is possible. The three chief additional interests that tenants have acquired in some counties are:—(1) The dung; (2) the residual manurial value of the feeding-stuffs consumed and manures used on the land; and (3) the manurial value of hay and straw; this, combined with the existing rights in it, made up the market value. When the hay and straw are valued at market price it is only natural for the dung to pass in the same way. But it is very difficult to say the tenants acquired this interest in the districts where the straw passed at a selling price. Possibly the evidence of Mr. Boniface, the Select Committee of the Agricultural Customs, which throws some light on it, when he says, in speaking of the custom of compensating for improvements, "I could not state that these allowances have become the custom; still, it is proper I should explain that they are daily themselves being made ground in the arrangements that are made between the landlord and the outgoing tenant, the tenant has employed considerable capital on his farm, has, really the means, with the consent of his landlord, of making a bargain with the incoming tenant that he shall be paid for the beneficial interest left on the farm." And, again, the words of Mr. Barnes, who speaks of compensation for drainage on the same occasion, are of interest when he says, "I have had it done, a claim for drainage disputed in many instances, and lost if the tenant did not pay for it on entering, and had no agreement to be paid upon leaving; but if it is to ourselves as valuers we always charge the incoming tenant for dung were made, as these gentlemen show, over twenty years ago, simply as an arrangement between outgoing and incoming tenants, with or without the consent of the landlord, and, having once obtained a footing in the inventory, were continued as a matter of right in succeeding changes." The payment for dung could only be abolished, for the sake of uniformity, by the landowners purchasing it at its crude value, without any cake or corn, say, at 2s. 6d. per load. Such a suggestion is not altogether unprecedented, because the liability for payment for half-manures was at one time largely bought up by landowners, so as to reduce the cost of entry into farms; at the same time, it would not be a very popular movement with landowners at the present time. The second of the interests acquired by tenants as mentioned has been the residual value of feeding stuffs consumed and manures used on the land. We shall deal with this later. It is, in passing, it is of interest to notice that the argument for feeding stuffs we have an example of an interest secured by legislation. The payment already existed by custom in some parts of England, so that the legislation brought all farm tenancies up to the same level in that respect. It threw an increased and immediate liability upon the tenant, but they have undoubtedly shared in the benefit accruing to the tenant by reason of the improved farming due to a sense of greater security. The last of the three interests is that which gave tenants the full market value of their hay and straw, and following from this the market value of the dung. It is this custom that is the permanent stumbling-block to a uniform custom. We could probably deal with all other difficulties, but the custom of market value has arisen as a matter of natural convenience, and even if it were reduced by substantial payments to a consuming price the conditions are such that we should gradually find the value drifting back again to the market price before long. Straw price, in fact, has entirely arisen round London and the large towns, especially in Lancashire and the West Riding of Yorkshire. There are a few exceptions where farms have been in hand and relief for the benefit of the owner at a market price; but otherwise the higher value has arisen by reason of the demand for hay and straw in the large industrial centres. It has been found necessary to give facilities to tenants for selling off hay and straw, and such being the case a valuation on that basis has been found the most satisfactory. It is of interest to notice how the market price gradually extends its boundaries. In the West Riding the hay and straw were at one time taken at a consuming price, but at the present time meadow hay and wheat straw are more often at market price in the south.

(To be continued.)

*Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Feb. 26, 1912.

Mr. Egbert Rushton has resigned his position as surveyor of the Cleeve Urban District Council on account of ill-health.

Correspondence.

THE POLICY OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—In last week's issue of the BUILDING NEWS I observed a statement in a letter from one of your readers which suggested that the publication of the report of the special general meeting of the Royal Institute, on January 8, had been delayed by the Society of Architects refusing to sanction its appearance. I shall be much obliged if you will allow me to correct this statement. The Society of Architects never refused to sanction the publication, and they were not responsible for any delay in the matter.—Yours faithfully, IAN MACALISTER.

9, Conduit-street, W. Feb. 29.

Intercommunication.

We award the guinea to Mr. Frank Wilson, 225, Nottingham-street, Sheffield.

QUESTIONS.

[12090].—LEADED LIGHTS.—In leaded lights with steel cased, is there any deleterious action set up between the two metals whereby their use is not to be recommended?—Edgar Simmons.

[12091].—DAMP THROUGH ASPHALTE CONCRETE ROOF.—In August of last year I erected a warehouse 20ft. square and 10ft. high. The roof was cement concrete 3in. thick, covered with asphalt. The asphalt was put on within a week of the fixing of the concrete. While the hot weather lasted, no signs of damp were noticed; but now, in certain conditions of the atmosphere, the ceiling and upper part of walls are soaking wet, with drops all over the ceiling. My own opinion is that it is the sweating from the concrete; but as it is so persistent, and comes in such large quantities, I am anxious, for my client's sake, to minimise the annoyance as much as possible. I may say the method of heating is a cyclone fan radiator. Is there a quick and economical method of getting the water out? I am afraid that if the coming summer is anything like last, the sun will draw up the water to the asphalt, and suspend it there till next winter, when the present difficulty will be repeated. Would coke fires drive the moisture in the concrete upwards to the asphalt instead of drawing it down to the ceiling?—Jamp.

REPLIES.

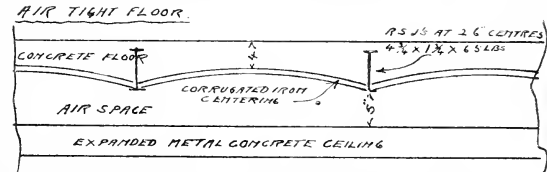
[12089].—AIR-TIGHT FLOOR.—I would suggest that the air-bricks be built in sand, and after the ceiling is finished and set, a 3in. layer of sand be spread over it, the concrete floor being laid on this as a centering. After setting, remove the air-bricks as required, and introduce a fairly strong vacuum cleaner nozzle, and suck out the dirt, afterwards setting the air-bricks in cement. The faners may be hired in most towns, and as air-bricks are on both sides of the building, all portions can be readily got at.—F. Dyer, F.A.S.I., 70, Lindsey-street, Bognor, York.

[12089].—AIR-TIGHT FLOOR.—There would be practical difficulties in the carrying out of the suggestions named in last week's inquiry, especially if the proposed floors are being inserted in an existing building. Four methods are herewith illustrated showing means of dealing with the problem. The first suggestion is to widen the space between the floors and interpose a lay-off. The second method is to fix four 6in. by 3in. by 12in. R.S.J.'s at 3in. centres, and having 4in. wall-hold at each end, and form arched centering for the concrete floor with expanded lighting or metal, filling in the floor with coarsest material at first, and finishing off with finer stuff at top. The third and fourth methods show the use of agricultural drain-pipes and expanded metal laid over them.—Frank Wilson, 225, Nottingham-street, Sheffield.

[12089].—AIR-TIGHT FLOOR.—The floor in question would certainly not be "air-tight." Concrete is a porous material, and no amount of air-space would measure the dormitory against penetration of smell. To put such a room over a stable is bad enough, and should never be done if it can possibly be avoided. If the smell does not get through the floor, it will through the windows. The by-law that the local authorities seem to be working on, insisting on air-space in the floor, evidently was framed in days when "framed" and "double-framed" floors were used. It does not appear to me to be applicable

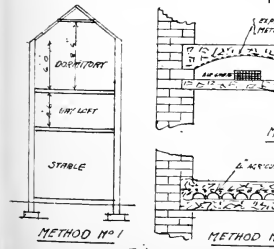
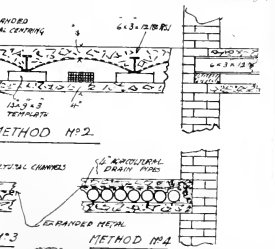
to such idea as mentioned in question could be done, of course. Piers of brickwork could be carried up, and the spaces left between them for pulling out the centering afterwards. Why not use ordinary centering nailed together like a drawing-board? In any case, it looks quite as well to ventilate the place under the floor as in the floor, and much easier. Hollow floor's harbour vermin.—S. Douglas Meadows, Town Hall, East Ham.

[12089].—AIR-TIGHT FLOOR.—As, owing to the



able to solid floors of this nature. A suggestion is made in sketch which is, I think, the best thing to

be done (providing the authorities allow it). Some such idea as mentioned in question could be done, of course. Piers of brickwork could be carried up, and the spaces left between them for pulling out the centering afterwards. Why not use ordinary centering nailed together like a drawing-board? In any case, it looks quite as well to ventilate the place under the floor as in the floor, and much easier. Hollow floor's harbour vermin.—S. Douglas Meadows, Town Hall, East Ham.



Mr. J. J. Hannigan, of Ballybofey, Co. Donegal, has been appointed county surveyor of Monaghan at a salary of £40 per annum.

3d. ... 6d.

THE BUILDING NEWS
AND ENGINEERING JOURNAL.

Effingham House.

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Strand, W.C.

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WAGE TABLES IN MEDIEVAL
BUILDERS' LEDGERS

The Tables of Wages and the amounts paid out to the various artificers and others employed by Medieval builders form a prominent feature in their ledgers. The usual plan adopted by the builder was to set down the particular art or craft of each class of men as a heading, beneath which was placed the wage per day agreed on. Then followed the names of the men and the amounts due for the time worked each week in days or half-days, hours not being counted in Medieval times. In some builders' accounts we find this system improved on and a method adopted which shows at a glance these days upon which any man had worked, Monday, Tuesday, or any other, and also the days on which no work had been put in. This little system we may now proceed to explain.

We will take three of the many Mediaeval builders' ledgers now in the Public Record Office, two of which are of the time of Henry VIII. In all three the more elaborate system has been adopted, and we shall see to what extent they place the week's work of each craftsman and labourer before us.

Let us begin with the ledger labelled Ex. Acc. 474-7, dating 1515. Here we see the usual heading indicating the crafts to which the men belonged, their names immediately following, with the amount of money agreed on to be paid to each man for each day. The amount due to each man is placed at the end of the line, the intervening space between the name and the amount due being filled by a series of small circles. These circles, very similar to capital O's, never exceed six in number, and they stand respectively for the six days of the week, the first for Monday and so on. At the end of the first week, another series of six O's may be seen standing for six days of a second week—and a third or fourth may be set down should the size of the page permit it.

When a man worked for a day represented by the O, that O was allowed to stand. If, however, he had not worked on that day at all, the O was filled in with ink, making a big black dot, a little cross being set above it thus $\overset{+}{\bullet}$. The meaning of the cross is not quite clear, and seems superfluous. If half a day only had been worked, a half circle is placed thus, C, instead of a whole one, O.

We give some examples of the system:—

Labourers, per diem *iiii*.
 John Dyconson—
 OO ⁺⁺⁺⁺ OOOOOO *ii*s. *viii*d.
 William Bray—
 OC ⁺⁺⁺⁺ ⁺⁺⁺⁺⁺⁺⁺ *vi*d.

Carpenters, per diem viul.		
Residual Cooke	OOOOC	ns. viabib.
Per diem vat		
Thomas Elyett	OOOC	ns. iml.
Richard Bukham	OOOCH	ns. iml.
Sawyers, per diem viul.		
John Andreon	OC	ixl.
Richard South	OC	ixl.
Brecklesters, per diem vinl.		
Thomas Peycock	OOOOO	ixis.

We see at a glance exactly how many days and half-days each man worked, and on what days he was absent.

John Dymenson we see, worked well on the Monday and Tuesday of the first week, but on the Wednesday, Thursday, Friday, and Saturday he was absent. The next week he put in the full time. William Bray worked on the Monday and for half Tuesday, but after that his powers apparently failed him altogether. And so, we see with the other men, some days were put in and some were not; the table shows exactly to what extent each man worked, and the days for which he was paid.

Now let us turn to MS. 459-22, dating 1539, where we see a very similar system adopted, but where more than two weeks appear on a page at a time, and where, in place of a circle being filled up and surmounted by a cross, we find a simple cross

John Jackson - 000+00 000000 ++ +000
Henry Newman - 000+00 000+00 vis. viii.
William Wormington - 000000
William Kington, ++ +000 000+00 iis. viii.
000+00 iis. viii.

In MS. 504-3, the circles alone are set down, a circle for each day. The amount agreed upon for each day's work is not given, but it is easily calculated from the table—6d.

Sawyers.			
Harry Conynan.	000000	000000	vs. vid.
Patrick Hoggysfelde.	000000	000000	vs. vid.
Richard Guyson	000000	—	iiis.
William Ale	000000	—	iiis.
	xviii.		

In MS. 454-29, absence is indicated by dot. Sometimes a cross, thus x, is put instead of a dot, though why, is not clear. For dot and cross have here the same significance. Sometimes a cross with an O above appears thus, x̄, but apparently the conjunction of the two have no other effect than the simple O, otherwise a day of full work.

WORKMEN'S RECEIPTS FOR WAGES

We are not able to place before the reader a single Medieval workman's receipt for his wages, nor is it at all likely that such receipts were given even for perquisites in cases of "part payment" for piecework. In a bill of a somewhat later period than the Middle Ages, dating indeed 1586, we find certain marks evidently set down by workmen which appear to represent forms of receipt for wages and other moneys. The interest naturally attaching to the subject will perhaps justify a brief description of these marginal marks. The accounts in question (Record Office, Exch. Acc. MS. 54-11) are set down on a roll of paper several feet in length, and consist of the particulars of the repairs of a house called Hartwell Lodge, with some additional details of other building expenses. Opposite the various items of money expended in wages and carriage of materials, the workmen paid have set their marks in the margin of the account, each man's mark being placed opposite to the paragraph relating to him. The items and the marks appended to them are arranged in the following manner. First the particulars concerning the work done and the cost incurred are set down, then in the margin on the right hand side the paver has set his mark, and finally, after it is his mark being stated immediately after. An example of a whole paragraph adopted:—

Item, payde to Richarde Estrig,
carpenter, and his man for
iii dayes worke the same
weke

vs. Richard Estrig
marke.

It will be noticed that the spelling of the name in the body of the accounts and in the margin is not alike, and, indeed, the names rarely are in exactly the same spelling in the accounts and in the margins. While some of the marks are simple crosses, several others are in so strange a form that nothing but a woodcut or photographic reproduction would reliably portray or describe them.

Sometimes no mark appears in the margin at all, sometimes the word "Deferred" is alone set down. In almost all cases the marks are placed before the name of the payee in the margin, as is seen in the example quoted. However frequently a particular man's mark makes its appearance, it is invariably in exactly the same form.

We may now attempt to describe a few of this very large number of marks set below, reproducing in the earlier instances the marks themselves and the few words attached to them.

labourer, by name Thomas Oaklee. His mark is a simple cross, the whole of the marginal addition reading—

— Oaklee's mark.

The next mark is that of a carrier of the name of Leonie Harrison. This mark differs little from a rather old capital H.

H Harrison's mark.

Robert Maynard, a carpenter, has a Latin cross for his mark.

Maynard's mark.

Richard Travill, another carpenter, has what looks like a Greek delta for his mark.

Travill's mark.


Saunders, a carrier, draws for his mark merely a straight line.

Saunders' mark.

Robarte Levisse, another carrier, makes a mark like an arrow-head.

— Levisse.

Robert Cunn, a mason, makes a mark which may be represented by an ornamental capital R lying on its face with a small flourish.

A tilemaker has evidently chosen the representation of a tile for his mark. Another mark is that of an ornamental W placed sideways, thus—. A plasterer draws the representation of a trowel, a sawyer draws a figure evidently intended to represent a double-handed saw. The mark of Thomas Church is exactly the outline of a ball; another mark differs little from a Greek Omega.

INDENTURES AND COVENANTS.

The terms Indenture and Covenant are to be met with at times in Mediaeval records of building operations. The former term is by far the more common, and will be found applied to documents of several kinds—contracts for building—agreements for the execution of certain work—receipts for money, and probably several other instances of formal agreement.

Indenture as applied to a form of receipt is alluded to in an account of moneys paid out for building work.

"Thomson of moneys hath been receivyd by indentures at divers times. — Record Office Exch. Acc. 509-63.

We give the following example of an Indenture, the original document being in the Public Record Office, labelled Exch. Acc. 489-2—

"This Indenture, made between William Edwards, constable of the castle of Chirk on the one parte, and John Wolher on the other parte, for the receive of such summes of money as the same John Wolher receivyd for the reparacions of the said castell as followeth—

"In witness whereof the said William the XXIIIId daye of Julye anno XXI. hie VIII—VII. II. Vs. VIIdi p^{re}sent William Edwards
"Item received," and so on.

In MS. 190 13 two other very similar indentures may be seen. The first covenant was less frequently used by builders, the meaning of the word being perhaps restricted to little more than "agreement." A covenant so far as the examination of a large number of Mediaeval building records enables us to judge was in fact a contract between two parties, the one to pay so much money, and the other to execute certain work for the same.

We are not able to place an example of a written covenant before our readers; but we reproduce two forms to covenants from the account book of a Mediaeval builder. These references show very clearly the meaning of the term, both are from the same volume (MS. 188-22) one minutely following the other as printed here—

"To Thomas Brock, labourer for hewnd and his hors, coveynt the said M^{or} the date hereofcomen. And
To the said Dombay, whete, for working and hawnd the said said, do coveynt.
For every m^{or} of work he shal do for us, his, and

ESTIMATING FOR REINFORCED CONCRETE. — V.

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PRIME COST OF MATERIALS.

The prime cost of the materials used for making concrete necessarily varies considerably, according to the locality, and the arrangements which may be made for delivering them on the site of the works. The following values are given as representative prices for labour and materials in London districts where suitable railway or river facilities are available.

Prime Cost of Cement. — Portland cement is usually sold by the manufacturers at per "cement ton" of 2,200 lb., comprising eleven sacks of 200 lb. each. The present average cost price of Portland cement (to comply with the Standard Specification of the British Engineering Standards Committee) when purchased in large quantities is about 20s. per cement ton, delivered free on rail or barge at works. The cost of delivery in barge-lads at London wharves (including wharf charges) amounts to about 2s. 6d. per ton. The average cost of railway carriage to London (in truck-loads) is 5s. 6d. per ton. Cement sacks are charged for at the rate of 9d. per sack, unless returned in good condition, and carriage paid. An allowance for use and waste of cement sacks, including cost of return carriage and railway return carriage and delivery of sacks to cement-works averages about 2s. per cement ton (i.e., for 11 sacks). Carriage of cement from wharf or goods station to site of works (average distance, 2½ miles) may be taken at 1s. per mile, or, say, 2s. 6d. per cement ton. The total average prime cost of cement delivered on site may therefore be taken at 27s. per cement ton where water carriage is available, or 30s. per cement ton if forwarded by rail. For estimating purposes an average prime cost price of 30s. per ton delivered on site has been adopted.

Prime Cost of Sand (or Fine Aggregate). — The average cost of river sand delivered at London wharf in barge-lads, and including carriage to site, may be taken at 6s. 6d. per yard cube. In country districts the cost of sand delivered on site is frequently considerably less than the price quoted. For sand obtained on or near the site, the cost of digging, removing, and stacking for use varies from 1s. 6d. to 2s. per yard cube.

In localities where sand is not obtainable, it may be cheaper and more convenient to use finely-crushed stone or granite, screened to pass 3-16 in. mesh, and free from dust. Fine granite screenings can be obtained, delivered free on rail at quarry, at 3s. per ton (1 yard cube = 1.25 tons approximately), or, say, 6s. 6d. per yard cube, including carriage to site in the neighbourhood of granite quarry. In other districts crushed stone can be obtained at a similar or slightly less average price.

Prime Cost of Coarse Aggregate. — Thames ballast or gravel, screened to pass 1½ in. but not 3-16 in. mesh, delivered on site, costs on the average about 6s. per yard cube, or, say, 6s. 6d. per yard cube if screened to pass ¾ in. mesh, but not 3-16 in. mesh. The cost of gravel excavated on site, including double screening, wheeling, and stacking, may be taken at 2s. 6d. per yard cube. Broken bricks, burrs, and clean old broken bricks, suitable for brick aggregate, may be obtained 1st from 5s. to 6s. per yard cube delivered on site, or if machine broken and double screened to pass 1½ in. and not 3-16 in. mesh at an average prime cost of 7s. per yard cube. Brick aggregate, broken and double screened to pass ¾ in. and not 3-16 in. mesh, costs about 7s. 6d. per yard

cube. When old bricks are available on the site, the cost of cleaning, machine-breaking, double screening, wheeling to heaps, and stacking, is about 3s. per yard cube.

Coke Breeze. — The average cost of unscreened coke breeze is 7s. per ton at gas-works. Coke breeze, double screened to pass ¾ in. and not 3-16 in. mesh, costs about 5s. 6d. per ton at gas-works, and is sometimes known as screened "pea-breeze." Approximately 1 cubic yard of screened pea-breeze = 1½ cwt. The prime cost of coke breeze aggregate, double screened to pass ¾ in. and not 3-16 in. gauge, delivered on site, and including washing ready for use, is about 7s. per yard cube.

Stone aggregate, broken and screened to pass 1½ in. and not 3-16 in. gauge may be purchased free on rail at 4s. per ton (1 ton = 1 yard cube) or, say, 10s. per yard cube delivered on site in London. If broken and screened to pass ¾ in. but not 3-16 in. mesh, the average prime cost price may be taken at 10s. 6d. per yard cube, including carriage and delivery to site in London district. When stone splallings or old stone rubbish is available on or near the site, the cost of machine-breaking, double screening, and wheeling to heaps averages about 3s. 6d. per yard cube.

Slag broken to 1½ in. gauge and free on rail at smelting works costs about 4s. per ton (1 ton = 1 yard cube approximately), or, say, 10s. per yard cube delivered on site in London. Slag broken and screened to pass ¾ in. mesh, but not 3-16 in. mesh, costs about 4s. 6d. per ton, or, say, 10s. 6d. per yard cube, including carriage and delivery on site in London district.

Broken Granite. — The average cost of Leicestershire granite aggregate free on rail at quarry in fairly large quantities, is about 6s. per ton broken to 1½ in. gauge, and 5s. per ton for granite crushed and screened to pass ¾ in. and not to pass 3-16 in. mesh. Welsh granite, free on rail at quarry, can be obtained at 4s. per ton, broken to 1½ in. gauge, and chippings at 3s. per ton, crushed and screened to pass ¾ in. and not 3-16 in. mesh. Guernsey granite aggregate, screened to ¾ in. and 3-16 in. meshes costs about 7s. 6d. per ton free on rail at South Coast ports, English or Guernsey granite, broken to 1½ in. gauge costs about 13s. 6d. per ton delivered at London wharf or railway station. For chippings screened to pass ¾ in. but not 3-16 in. mesh, the average cost may be taken at 12s. 6d. per ton at London wharf or railway station, or, say, 15s. per ton delivered on site. As 1 yard cube of granite aggregate weighs 22 cwt., approximately, the average cost of granite aggregate (¾ in. to 3-16 in.) delivered on site of works in London district is estimated at 16s. 6d. per yard cube. It will be observed that the cost of carriage bulks largely in determining the prime cost value of granite aggregate in the London district. When there are granite quarries near the site of the proposed works, the cost of broken granite may compare favourably with other descriptions of aggregate. In the case of quarry-broken granite we have the apparent anomaly that the cost of crushed granite for the larger sizes is greater than for chippings or small crushed granite. This is due to the fact that quarry owners and manufacturers of road macadam obtain large quantities of granite chippings as a by-product when making granite macadam broken to 1½ in., ¾ in., and 2½ in. mesh, and from which all the small material is removed. The demand for the smaller material is not so great as for the larger sizes, and it is consequently sold at a lower price in order to avoid accumulations of surplus chippings and siftings.

ANALYSIS OF PRICES FOR CONCRETE.

The prices already quoted for concrete work are based on the following prime cost values for materials delivered on site in readily accessible parts of the London district, viz.:

Portland cement	Per ton	30 0
Sand	Per yard cube	6 6
Course aggregates	Per yd. cube	
Ballast or gravel screened to pass 1 1/2 in. mesh, but not to pass 3/4 in. mesh		6 0
Broken brick ditto ditto		7 0
Ditto stone ditto ditto		10 0
Ditto granite ditto ditto		17 0
Ballast or gravel screened to pass 1/2 in. mesh, but not to pass 3/4 in. mesh		6 6
Broken brick ditto ditto		7 6
Coke breeze ditto ditto		7 0
Broken slag ditto ditto		10 6
Ditto stone ditto ditto		10 6
Ditto granite ditto ditto		16 6

A few typical analyses of cost of concrete work are now given for the purpose of illustrating the system adopted for determining the values of the various items and prices already given. By substituting the local rates of wages, materials, etc., in lieu of those indicated, the estimated cost of similar work in other localities may be readily ascertained.

Under ordinary conditions, it is found that a total quantity of 35 to 39 cubic feet of dry materials is required to produce 1 cubic yard of well-made and consolidated concrete. For general estimating purposes, an allowance of 1 1/4 cu. yds. (39 cu. ft.) of materials has therefore been provided for each cubic yard of finished concrete.

ORDINARY CEMENT CONCRETE IN FOUNDATIONS.

I.—Concrete 1 to 1 1/2 (2 1/2) with gravel aggregate screened to pass 1 1/2 in., but not 3/4 in. gauge.

3 1/2 ft. cube of cement at 30 lb. per foot cube	8 0
= 33 lb. at 30s. per cement ton of 2,240 lb.	1 9
1 1/2 ft. cube of sand at 6s. 6d. per yard cube	2 9
2 1/2 ft. cube of ballast at 6s. 6d. per yard cube	5 2
30 ft. cube of dry materials	cost 19 6
Four hours labourer at 7d., measuring, mixing, wheeling, lowering, not exceeding 20 ft., and ramming in position	3 4
Water, 30 gallons, say	0 1
Add for establishment charges, use of plant, and profit, say 15 per cent.	15 2
	2 3
Per yard cube	17 6

CONCRETE FOR REINFORCED FOUNDATIONS.

II.—Concrete 1 to 1 1/2 (2 1/2) with gravel aggregate screened to pass 1 1/2 in., but not 3/4 in. gauge.

5 1/2 ft. cube cement = 50 lb. at 30s. per yd. cube	8 0
10 ft. cube sand at 6s. 6d. per yard cube	6 10
2 1/2 ft. cube ballast at 6s. 6d. per yard cube	5 4
30 ft. cube of dry materials	cost 14 10
Four hours labourer at 7d., and one hour concrete at 9d., measuring, wheeling, lowering not exceeding 20 ft., and well-working and ramming concrete in position round reinforcement	3 1
Water	0 1
Add 15 per cent. profit, etc.	18 0
	2 8
Per yard cube	20 9

CONCRETE FOR REINFORCED RETAINING WALLS ABOVE FOUNDATIONS, WALLS OVER 12 IN. THICK ABOVE 12 IN. THICK, ETC.

III.—Concrete 1 to 1 1/2 (2 1/2) with hard stone aggregate screened to pass 1 1/2 in., but not 3/4 in. gauge.

8 ft. cube cement = 50 lb. at 30s. per cement ton	8 0
10 ft. cube sand at 6s. 6d. per yard cube	6 10
2 1/2 ft. cube broken stone at 10s. 6d. per yard cube	8 3
30 ft. cube of dry materials	cost 19 6
Four hours labourer at 7d., and 1 hour concrete at 9d., measuring, mixing, wheeling, raising or lowering not exceeding 20 ft., including attendance on concrete with small quantities of well-working and ramming concrete in position around reinforcement	3 6
Water	0 1
Add 15 per cent. profit, etc.	22 7
	3 4
Per yard cube	26 0

CONCRETE FOR REINFORCED PILLS, COLUMNS, CHIMNEYS, ETC.

IV.—Concrete 1 to 1 1/2 (2 1/2) with hard stone aggregate screened to pass 1 1/2 in., but not 3/4 in. gauge.

7 1/2 ft. cube cement = 63 lb. at 30s. per yd. cube	8 8
10 ft. cube sand at 6s. 6d. per yard cube	6 10
2 1/2 ft. cube broken stone at 10s. 6d. per yard cube	8 3
30 ft. cube of dry materials	cost 19 6
5 1/2 hours labourer at 7d. and 1 1/2 hours concrete at 9d., measuring, mixing, wheeling, raising or lowering not exceeding 20 ft., and well-working and ramming concrete in position in small quantities around reinforcement	4 0
Water	0 1
Add 15 per cent. profit, etc.	23 7
	3 4
Per yard cube	27 2

SHEETING, CENTERING, ETC.

Fixing.—The shuttering, sheeting, and centering should be securely fixed with all necessary struts, bearers, etc., to properly support the work, so that the whole may remain perfectly rigid during the placing and punning of the concrete. Where practicable, the moulds, shuttering, etc., should be fixed in position with wedges and clamps. Moulds and forms for reinforced concrete beams and girders should be arranged with a slight camber of about 1/200th of the span on the under side. Linewhiting to Centering, etc.—The surfaces of centering, casings, etc., to be linewhited or payed over with a solution of slush where necessary, before depositing the concrete in position.

Striking and Removal.—All centering to be arranged so that it may be eased without disturbing the concrete. No casings, centering, etc., to be removed until the concrete has properly set, and, if practicable, should be allowed to remain in position for not less than fourteen days after the concrete has been deposited. For arches of large span, the centering should be permitted to remain for not less than twenty-eight days.

Thickness of Centering, etc.—The sheeting or centering for floor slabs, etc., should be not less than 1 1/2 in. thick, and supported on stout fir joists or bearers spaced about 2 ft. apart. For columns, beams, girders, etc., forms or moulds of 1 in. or 2 in. deal should be used.

CARPENTERS' WORK.

SHEETING, CENTERING, FORMS, MOULDS, ETC. USE AND WASTE.

Note.—The following prices are for use and waste of casing, centering, forms, moulds, etc., for reinforced concrete work, including all timber in strutting, etc., and fixing same, with use of any necessary bolts and nuts, all labour to plumbing of angles and surfaces, easing, striking, and removal complete.

When the same centering, casing, forms, etc., can be used several times in the same work, without much cutting or alteration, a price of half to one-third the cost of ordinary use and waste may be allowed for every subsequent use.

Sheeting, centering, etc.—	Per yd. sup.
Use of wrought sheeting for concrete floors, flat roofs, etc., including close flush joints	8 0
Ditto centering to vaults, roofs, arches, etc., of any curvature or span exceeding 4 ft. diameter, straight on plan	2 9
Ditto ditto skewed or raking on plan	3 0
Ditto ditto curved or circular on plan, as to domes, etc.	3 3
Use of centering to sewers, conduits, etc., circular or oval shape, including 2 ft. and not exceeding 6 ft. diam., straight on plan	4 6
Ditto ditto curved on plan	7 0
Shuttering, casing, etc.—	
Use of wrought shuttering or casing for retaining walls, with vertical or battered face, all surfaces measured straight on plan	1 10
Ditto ditto curved on plan	2 9
Ditto ditto with curved and battered face, straight on plan	2 9
Ditto ditto curved on plan	4 6

Use of wrought shuttering or casing for concrete walls of buildings, not exceeding 12 in. thick, with vertical faces, and shuttering fixed to walls on all surfaces measured straight on plan	2 8
Ditto ditto curved on plan	2 6
Ditto ditto 9 in. thick, and 10 in. wide, straight on plan	1 0
Ditto ditto ditto curved on plan	2 8
Add to preceding item, if in separate detached narrow widths, up to 30 in. wide	1 6
Deduct from preceding items if fixed with rough face and joints. For each rough face	0 4

Forms to beams, girders, columns, etc.—	
Use of forms, exceeding 4 in., for concrete beams, arches, etc., built in situ	2 6
Ditto ditto for concrete piers, etc., square or rectangular, including 4 in. thick	4 0
Ditto ditto ditto circular in section	1 6
Add to preceding items if under 144 square inches in section	1 0

Moulds, etc., for cast concrete work—	Per ft.
Use of moulds, etc., for casting concrete of super. plain sections, as for lintels, door and window heads, etc., straight on plan	0 4
Ditto ditto circular on plan	0 6
Ditto ditto for ornamental moulded sections as for cornices, etc., straight on plan	0 8
Ditto ditto circular on plan	1 0
Centering to door and window openings, etc.—	
Use of centering to curved door and window heads in openings to concrete walls	0 9
Ditto ditto to door heads, etc., in concrete walls	0 9
Ditto ditto for curved heads to door in concrete	1 3

FILLET, MOUNDINGS, ETC.

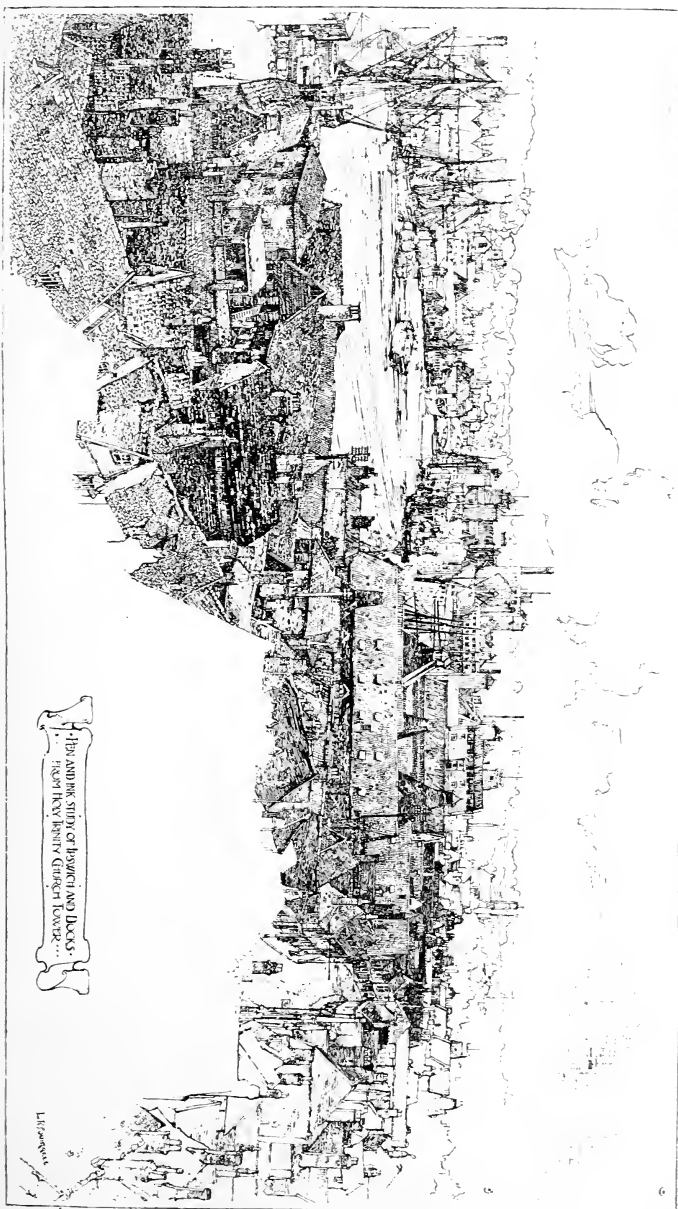
Add to moulds, casings, etc., for forming channels, rounded angles, relates, etc., for concrete beams, columns, etc., not exceeding 3 in. girth, straight	0 1
Ditto ditto circular	0 12
Ditto for bull-nosed angles, chamfers, splays, relates, or reveals to door and window frames, etc., to concrete beams, columns, walls, etc., exceeding 3 in. and not exceeding 9 in. girth, straight	0 2
Ditto ditto circular	0 2
Ditto ditto exceeding 9 in. and not exceeding 15 in. girth, straight	0 4
Ditto ditto circular	0 4
Extra to moulds, casings, etc., for forming ornamental mouldings, etc., to concrete beams, columns, etc., not exceeding 3 in. girth, straight	0 3
Ditto ditto circular	0 4
Ditto ditto exceeding 3 in. and not exceeding 9 in. girth, straight	0 6
Ditto ditto circular	0 9
Ditto ditto exceeding 9 in. and not exceeding 15 in. girth, straight	0 8
Ditto ditto circular	1 0
Extra for mitres and steps to chamfers, mouldings, etc., not exceeding 3 in. girth	0 1
Ditto ditto exceeding 3 in. and not exceeding 9 in. girth	0 2
Ditto ditto exceeding 9 in. and not exceeding 15 in. girth	0 3
Extra for splay cutting and waste on centering, run straight	0 2
Ditto ditto circular	0 4
Extra to centering for intersection of groins, including waste	0 4
Use and waste of timber in shoring to excavations, etc., including fixing and re-cube moving	1 0

ANALYSIS OF PRICES FOR SHEETING, CENTERING, ETC.

The average wholesale market price of timber suitable for rough and temporary purposes may be taken at about £3 3s. per load of 50 cu. ft. of balk timber, and £10 10s. per St. Petersburg Standard for deals, battens, etc. A St. Petersburg Standard = 120 deals, 12 ft. long, 1 1/2 in. by 1 1/2 in. = 165 ft. cu. = 660 ft. super. of 3 in. deal = 1.58 ft. super. of 1 1/2 in. deal.

In many cases a contractor is able to avoid the purchase of any considerable quantity of material for temporary strutting and sheeting purposes, by using old timber or material which has been previously used for similar purposes, and also by utilising the rough pieces of timber which have been thrown out in the sorting and conversion of deals, balks, etc., for joiners' work. Foreign-prepared boards and skelings are also obtainable at reasonable prices, which may be carted direct to the site of the work, thus avoiding the trouble and expense of conversion, planing, etc., at the contractor's yard.

After allowing for conversion into scantlings, barding, machine-planing, cartage, etc., the net cost price for sound timber suitable for false-work to concrete, such as strutting, sheeting, centering, etc., may be taken at 1s. 8d. per foot cube for



THE AND BIK CITY OF BAYBUTH AND DOCKS...
...THE NEW BIK CITY OF BAYBUTH AND DOCKS...

NATIONAL SILVER MEDAL DRAWING: LONDON AND DOCKS. BY MR. LEONARD SOUTHERN.

THE TENDENCY TOWARDS UNIFORMITY IN COMPENSATION FOR AGRICULTURAL IMPROVEMENTS*

By LESLIE S. WOOD, F.S.I.

(Continued from page 323.)

Now, having reviewed the true customs of the country, we can turn back again to the subject of the customary payments. These, as has already been mentioned, are of an arbitrary character, and are a comparatively modern creation. This is conclusively proved by the Report of the Select Committee of 1818, to which reference has already been made. This Report gives us a very good idea of the early history of compensation for manures and feedings-stuffs, and they are supplemented in the Minutes of Evidence by the words of Mr. Hesselstine, who was then farming in Lincolnshire, and who considered that the custom became general in that county about 1826. Probably he set the date a little early, but not far. Mr. Hesselstine, a Granger, writing in 1828 of the Lincolnshire custom, did not refer to this innovation. But the custom never became general; it extended to Glimorgenshire, but made no further headway. At the same time it developed in another form in those counties where it was customary to pay for dung at a price per load, for it became necessary for the farmer to be valued at a higher price, according to its quality. In 1848 we see the Select Committee favoured compensation for unexhausted improvements, but they thought that any attempt to make its general introduction compulsory would be met by great practical difficulties, and they relied upon mutual arrangements between landlords and tenants for the general and successful adoption of the system. Although this ideal of mutual arrangements received no encouragement, the effect of the work of the Committee was not apparently lost, and the demand for compensation increased until in 1872, as a result of considerable agitation and the work of the Council of the Central Agricultural Association, and of the Agricultural Committee on Agricultural Customs was appointed, and they presented their final report in 1875. In that same year the first Agricultural Holdings Act, dealing with compensation for unexhausted improvements, was passed. There is no need to deal with this Act in detail, for as there was no provision in it against "contracting out," it had but little effect, other than to establish the principle. Consequently, in 1883, as a result of the recommendation of the Commissioners on the Royal Commission on Agricultural Depression, a further Act was passed, which confirmed the principle of compensation and made it compulsory. With the passing of this Act, valuers' associations all through the country realised that in order to deal with the valuations likely to arise under it they must adopt a definite scale of compensation, and the Lincolnshire scale was adopted in nearly every case. Consequently the usual method of calculating the amount payable was to take the cost price and allow one-third of this for interest, cotton and rape seeds, and malt one-sixth and one-twelfth were allowed in the last year and year previous respectively. But between the passing of the two Acts of 1875 and 1883 the opinion that cost price was unsatisfactory had been gaining ground, for it was not clear that whereas the Act of 1875 stipulated that the compensation should be "in proportion of the sum proper," that is, "paid by the tenant," this principle was abandoned in the Act of 1883. Two years later, in 1885, the principle of manurial values was inaugurated by the publication by Messrs. Lawes and Gilbert of their famous scales, which were revised and brought up to date in 1897. At first, valuers' associations were slow in accepting their old method of a cost price basis; but in 1893 a valuers' association had adopted the new method, and by 1908, when the Central Chamber of Agriculture issued their second report, it was

shown that this number had been increased to thirteen, but there were still several associations satisfied with the old system. The Agricultural Holdings Act of 1906 had again called attention to the question of tenant-ripped valuations and compensation, and a fresh impetus was given to the subject by the publication in 1902 of revised tables of manurial values, prepared by Messrs. Voelcker and Hall. When the Committee of the Central Chamber of Agriculture, appointed to draw up a scale of compensation, issued their report in 1903, it placed us in possession of all the latest facts and strongly emphasised the importance of adopting a scale based on manurial values.

Now, what has been the effect of all this rapid development, and what is the position to-day? The effect has been to produce four different bases of compensation, and the result is that valuers' associations all over the country are divided in opinion as to the best method of assessing the tenant's interest. These four methods are based on: (1) Cost price, (2) Lawes and Gilbert's tables of 1897, (3) Voelcker and Hall's tables of 1902, (4) the scale suggested by the Central Chamber of Agriculture in 1903.

Mention has already been made of the "cost price" basis, and it is necessary to explain quite briefly the principles involved in the tables of manurial values. There are three manurial constituents to be considered—nitrogen, phosphoric acid, and potash, and when Lawes and Gilbert prepared their tables they analysed the various feeding-stuffs to find the percentages of these three constituents per ton, and having by experiments discovered the amounts that went to make up increased weight in the beasts fed, assumed that the residues were returned to the farmer in dung, but were subject to loss by evaporation and drainage. These several residues were priced at their value as agricultural commodities, and thus was defined the total or original manure value per ton of food consumed. In their tables of 1885 Lawes and Gilbert priced the ammonia at 6d. per lb., the phosphoric acid at 3d., and the potash at 2d. In 1897 the ammonia was put at 4d., the phosphoric acid at 2d., and the potash at 1d., giving a considerable difference in the manurial value. Having arrived at the original manurial value there were two important points to decide: First, the percentage of waste by evaporation and drainage; and second, the proportion left from year to year by successive crops. As a result of their observation they assumed, with considerable accuracy apparently, that with corn, clover, and the usual artificial feeding-stuffs, one-half of the original manurial value was thus lost, and with hay and straw two-thirds was lost. They also estimated that the manurial value was calculated as lasting for eight years—that with hay and straw one-fifth of the value should be deducted each year, and with cake and other feeding-stuffs one-third should be taken off. Voelcker and Hall prepared their tables in 1902 they based them on the work already begun by their predecessors, but they improved on it. For one thing, they defined much more accurately the loss of manurial value, and in order to simplify the tables they introduced the "per unit" standard, and altered the period of exhaustion from eight to four years, with a reduction of 50 per cent. each year. Moreover, in calculating their prices, they based them upon the prices of three constituents as charged to farmers in artificial manures. These they reckoned to be 5½d. per lb. for the ammonia, 2d. for phosphoric acid, and 7½d. for potash. A unit is 1 per cent. of a ton, or 22 lb. So that the price per unit of ammonia would be about 22 ½ by 5½d., 10s. 3d., which is equivalent to about 12s. per unit per ton for nitrogen, and in the same way phosphoric acid was calculated to be worth 3s., and potash 4s., per unit per ton.

In adopting the method of fixing the manurial loss, Voelcker and Hall found from their analysis that the loss of the potash and potash was in no way equal to the loss of ammonia. Consequently, instead of taking the loss as a whole at one-half, they divided the three constituents, reckoned the loss of nitrogen at one-half, of phosphoric acid at

one-fourth, but made no deduction in the case of potash. The fourth alternative scale is that of the Central Chamber of Agriculture, but it needs no comment. Its figures are substantially based on those of Voelcker and Hall, but the table of compensation is restricted to two years.

With the history and facts before us we can face the main question, Is it advisable to have one uniform basis of compensation throughout the country. If so, which should be adopted, and should it be embodied in an Act of Parliament as the basis for compensation in all claims under the Agricultural Holdings Act? Would such a procedure work an injustice to existing tenants? To what extent is it possible to revise systematically such a scale, if permanently adopted? Should it also form the basis of any deduction for any produce sold off the holding? Does a manurial value mean simply a chemical value, or does it include a mechanical value in the case of straw? These are all questions that are having serious attention to-day, and need very serious consideration. If it be decided that it is desirable to adopt a uniform scale it would be unnecessary to deal with several of the later questions just suggested; but I believe the majority of opinion would favour such a course. There are obstacles in the way of it—one quite realises that; there are the various scales now in existence which valuers do not care to alter; there are old prejudices against any change there is a fear that such a change would work an injustice to sitting tenants, and in many districts, one is sorry to say, there are still in existence the old scales based on cost price, and they are so much more easily understood than tables founded on experimental work, and many men dearly love an old rule of thumb. On the other hand, all men realise that the old basis of cost price is out of date, and cannot be defended from an agricultural, much less from a scientific, point of view, and a uniform scale would bring all valuers' associations into line upon the most approved modern basis. The great advance that has been made upon the lines of manurial value during the past ten years shows that the time is ripe for the adoption of a modern scale, and the fact that such a scale has been adopted in many districts shows that its technicality is no hindrance to its use; the standard of technical knowledge and the opportunities of studying the subject, so far as it needs study, are, of course, much greater to-day than they were even ten years ago. If we adopted such a scale, we should concentrate our attention on it, it would be revised, and it would be worth improving, and what is most important, it would be worth revising year by year, according to the value of the chief manurial constituents. At present, with four scales in use, there is no concentration, except to the extent that the cost price scale and the Lawes and Gilbert scale are in themselves dead to the scientific world, and such advance as is made is necessarily made along the lines of Voelcker and Hall's tables. For these reasons, if a uniform scale be adopted, there seems no question that it ought to be founded upon the Voelcker and Hall tables. If it go no further, it would be better to adopt them as they stand, but if once we can agree that a uniform scale is desirable, it is the possible scientific basis, and the possible application of a four-year table to a two-year basis, and the addition of a mechanical value to the manurial value of straw. If the co-operation of the learned compilers of the tables were possible a successful outcome to a representative conference would be assured. But there is a stronger reason still why the scale should be revised, and it will enable us to deal much more authoritatively with the question of manures. At present it is the almost invariable rule to allow for artificial manures at their market price upon production of the bills, without inquiring into their chemical ingredients and manurial value. Such a custom must lead to considerable loss to the tenant, and to an outgoing tenant buying in the cheapest and best market. The Fertilisers and Feeding Stuffs Act, combined with a modern scale of unit values annually revised, opens up possibilities of a far more equitable valuation

* Read at the Ordinary General Meeting of the Society, held on Monday, Feb. 26, 1912.

CURRENTE CALAMO.

We do not think, as things are, that many will regret that Mr. Horace T. Bonner's resolution was not carried at the meeting of the Institute on Monday evening. In any society in which there are two or more classes of members, to the highest of which any properly qualified member may—and speaking generally, should—advance himself, the management of the Society should, and usually will, mainly devote on that class, simply because it will, or should, embody the ripest judgement of, and fuller acquaintance with, the concerns of the Society. Some representation on such a managing body is the right of the junior members, and we think the majority of the Associates are contented with the share that is theirs. Indeed, it seems to us that Mr. Bonner's motion was rather the embodiment of the discontent of the Associates who ought before this to have become Fellows. There are doubtless some of them who have personal reasons for remaining Associates, which it would be impertinence to criticise; the rest will pardon another reminder from us that it really is their duty to the Institute and to themselves to take the Fellowship and the fuller share of responsibility it entails.

Unless, of course, there is any reality behind the opinion which seems to prevail in some quarters, that recent events have favoured the idea previously mooted that it is time the Membership of the Institute, like that of the Society, was made of one class only—or rather two classes, Members and Students, and the subscription equalised. That is a proposition which needs very serious consideration. It is said by many with a considerable show of reason that there ought always to be a higher grade of Membership to which those only should be admitted who have in actual professional practice manifested their full qualifications for it. It is said by some that this is all very well in theory, but does not work in practice, the fact being that there are as able men, many able men, among the Associates than some among the Fellows, who see no hindrance to proceed to the higher grade. If that became so largely, probably before very long the one membership idea would prevail. At present we hardly think it does sufficiently to bring the matter within the range of practical politics.

Perhaps, as some say, it might facilitate the amalgamation of the Society. We hardly see why, ourselves. If the present scheme falls through, there are other and perhaps better ways of amalgamation, as we have before hinted; which, though not formulated, are being discussed. We think amalgamation will come, and that the feeling at the Institute in its favour is growing. The committee the Council has appointed are all good men whose diverse views are not likely to prejudice their straightforward action. Some of its members may, at present, be opposed to amalgamation, others are in favour thereof; but all, as we are quite sure, have the only common object in view worth pursuing—the highest interests of Architecture and Architects, irrespective of all Societies or individuals, and it seems to us impossible that men of their stamp can work together without arriving at good results and diminishing prejudice.

We are glad that Mr. Sydney Perks's notion in favour of the publication of

speeches at business meetings was so far practically accepted, that, subject to an amendment which was carried, it is to be done in future, subject only to the discretion of the chairman as to details. At the majority of business meetings the speeches ought to be reported. At some it would be inadvisable, and might be dangerous. There are times when members of any society do speak with greater, and to be desired, freedom when they know their words are not likely to be repeated elsewhere. There are other times when the possibility of publication, if now and then it induces shallow speakers to play to the gallery, does, and should, bring their responsibility more fully home to the greater number. The chairman is the proper person to decide as to publication, and discretion is wisely left in his hands.

When facilities for properly illustrating or reviewing competition designs are not afforded us we can only let them alone. We cannot say whether it is justified, but our contemporary, *The Hospital*, in its last issue somewhat severely criticises the award in the recent East Sussex Hospital, Hastings, competition. Certainly, if the special report made to our contemporary by a Fellow of the R.I.B.A. is correct, the award is difficult to understand. The writer says:

When we come to examine the plans we are at a complete loss to understand how any assessor with any knowledge of hospital planning could have arrived at such a decision as has been given in this case. The three proposed plans, Nos. 1, 2, and 3, ought not to have been placed in the first half dozen, and No. 3 is superior to the other two in almost every point. The designs as a whole are, it must be confessed, disappointing, a comparatively few of the competitors have made any attempt to construct their roads economically, and many have been led by the multiplying entrances to get over the difficulties of gradients.

In the design placed first the road leading to the mortuary has a slope of 1 in 3, as calculated from the figured levels, although the elevation shows a nearly level approach. The road to the out-patient department has a slope of 1 in 47, and that to the main administration block a slope of 1 in 5. Needless to say that such gradients are wholly impossible for wheeled traffic and quite steep for foot traffic. These points alone ought to have disqualified the design.

Turning to the plans, we find the out-patient department and the dispensary placed at a level left, below the ward corridor, the only connection between them being by two long flights of stairs within a covered way. All medicines, etc., therefore, served from the dispensary for the wards would have to be carried up these stairs, as there is no lift and no possibility of arranging one.

The ward pavilions are so planned that when the future extension is carried out the eye wards and the rest of the treated wards must be destroyed. The eye wards, instead of being grouped together with a common operation-room, are placed one with the male, the other with the female wards, and two operation theatres are provided. On the ground floor no sanitary provision is made for the eye wards and the two small wards, the only offices being at the extremity of the large ward. The same remark applies to the first floor, where are wards for four and two patients, with no sanitary accommodation except that at the south end of the ward. We therefore find no answer to the question as to the position of nurses' wards, the author has arranged these offices behind the entrance, about the most inappropriate position he could have chosen.

Another Fellow of the R.I.B.A., in a "spontaneous communication" to *The Hospital*, says:

The assessor's conditions show a lack of knowledge both of the site and the application of the conditions thereto, it being assumed that the site was level. From an examination of the selected design it is clear that the difficulties have been ignored, and that the assessor has not been required to do so. The cost was stipulated as being an essential in the selection, £35,000 being the sum that the committee would have available. The selected design is about £2,000 above the sum fixed as essential in the selection. I believe that with care a much lower figure might be reached.

The site, with its fall of over 50ft. from east to west, of course presented difficulties. Whether they were appreciated by the competitors or ignored by the assessor, such

illustrations as we have seen really do not enable us to say. It would have been a satisfactory had the writers added their names to their criticisms. The question as to cost was really left to the competent judgment, as the sum stipulated was manifestly insufficient.

The evident reply to up-to-date people who want to know, "Where to look?" is "Jerusalem." A French syndicate has just secured the contract for a complete new way service, an English firm has submitted tenders for lighting the city by electricity, a German combine is to improve the water supply from the valley of the brook Cherin—less easily exhausted, we trust, than when drought drove Elijah from its brink to Zarephath. The police are to be mounted on bicycles, and the roads are to be watered. We see no mention of picture palaces; but they, doubtless, will soon follow. For more than a year the city has had a better telephone service than London—a better one than London had, we mean, of course. Present comparisons would be odious. There are no garden cities yet in the suburbs, and people who live excitement will miss coal strikes, Suffragette window-smashers, and the evidently not distant general election. So we shan't all sing, "Jerusalem, my happy home" just yet, and the wise few who emigrate early may count their blessings there for awhile, anyhow.

Others besides ourselves have expressed doubts of the necessity of holding a Building Trades Exhibition as frequently as every two years even in London; but however that may be, we fancy the holding of two exhibitions at practically the same time in Manchester will convince most concerned that the money if spent in wider and less conflicting means of publicity would probably have secured a more profitable return. The seventh Manchester Building and Allied Trades Exhibition was opened at the City Hall, Deansgate, on Tuesday last by the Rt. Hon. S. W. Boyle, J.P., Lord Mayor of Manchester, and will remain open until March 16. To mark the opening of Mr. H. G. Montgomery's Building Exhibition, which certainly promises to be of a more representative character, though Rusholme is some distance from the city. Those, however, who do visit it will find excellent exhibits of such well-known firms as Messrs. The Parsons and Sons, Ltd., Romk, Ltd., G. M. Callender and Co., Ltd., C. H. Musselwhite and Son, C. A. Peters, Ltd., C. Jennings and Co., the Pasham Hall Colliery Co., the Kleime Patent Fire-Resisting Flooring Syndicate, Ltd., Chubb and Sons' Lock and Safe Co., Ltd., G. Jackson and Sons, Ltd., Hayward Bras, and Ekstein, Ltd., J. H. Pattenon, R. Wayss and Co., Ltd., D. Anders and Son, Ltd., John P. White, Ltd., and others whose specialities are well known to readers of our columns, and to some of which we may have occasion to refer again next week.

One of our advertisers, we notice, offers his services this week as an architect's assistant "at a figure which Welsh miners reject as not a living wage." We are not sure that seven shillings a day is much of a temptation to employers, as things go, and we fear many assistants are ready to take less. Certainly some of our municipal bodies offer less for positions of real responsibility, not infrequently appending the stipulation that whole time must be given. That often reminds us of an advertisement of the Cape Government

ment for a new hangerman, salary £150 a year. One condition in the advertisement was, "He will be expected to devote his whole time to his duties." We have sometimes wished "the duties" were included in those of sweated employees of such bodies here, and that their time might be fully occupied in disposing of their stingy taskmasters.

METAL LATH AND CEMENT PLASTER

Typical specifications for stucco on metal lath have been prepared by the Associated Metal Lath Manufacturers, Youngstown, Ohio. These specifications have been framed after investigations extending over a period of more than six months. From the copy furnished the *Contract Record* by Mr. H. B. McMaster, Publicity Commissioner for the above Association, we extract the following:

FRAMING AND GENERAL CONSTRUCTION.

Elmsy construction in framing is false economy. The best will prove cheapest. The studs, spaced at 12in. between centres whenever possible, should be run entirely from foundation to the rafters without any intervening horizontal grain in the wood. These studs should be tied together just below the second story joists by a 6in. board, which shall be let into the joists on their inner side, so as to be flush, and securely nailed to them. This board will also act as a sill for the second story joists, which in addition will be

of the moulding to show when finished is not measured in as part of this thickness.

FURRING.

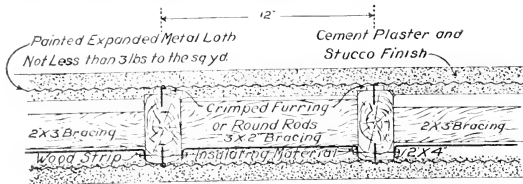
Use painted or galvanized steel rods or painted or galvanized crimped furring. One-quarter inch is best, and it should not be over 3in. at the most. This furring is to be applied along the face of the studding with galvanized staples.

INSULATIONS.

After the lath on the outside has been back-plastered, the air-space may be divided by applying heavy building paper, quilting, felt, or some suitable insulating material between the studs, fastening it by nailing wood strips over folded ends of the material. This insulation should be so fastened as to clear the 2in. bridging, leaving the preponderance of the air-space on the outside. Care must be taken to keep the insulating material clear of the outside plaster and to make tight joints against the wood framing at the top and bottom of the spaces, and against the bridging where the 3in. face intercepts.

CORNER BEAD.

If corner bead is not used, there should be 6in. strips of metal lath bent around the corners and stapled over the lathing, unless the sheets of metal lath as applied are folded around the corners. Even though corner bead is used, it is a good precaution to bind the corners in this way, and apply the corner bead over the strips of lath.



Detail Showing Section of Exterior Wall.

securely spiked to the sides of the studs. At two points between the foundation and the eaves brace between the studding with 2in. by 3in. bridging, placed horizontally, but with the faces of the bridging inclined in alternate directions in adjacent spaces.

All roof gutters should be fixed, and downspouts put up before the plastering is done; the downspouts should be temporarily placed about a foot from the wall so there will be no break in the plastering where they are to be finally fixed.

Wood copings or rails for tops of parapets, balustrades, etc., are not so good as cement, for they may curl up, warp, check, crack, and in various ways fail to do what they should - *v.z.*, keep water from getting behind the plaster. This also applies to brick chimneys; when plastered, should have wide and tight caps of concrete or stone, to prevent water running behind the plaster.

If only walls are used, they should project well from the face of the plaster, and should have a good drip, either by being placed with a downward slant or by a groove formed in the under side of the sill near enough to the edge that it will not be covered by plaster. The drip is an essential of good construction, or not cannot be slighted. It must be used to prevent water getting behind the plaster. Lath and plaster should not be carried all the way down to the ground; this same restraint applies to brick or stone. Care should be taken that all trim be placed the proper distance from the building or furring, to show its right position after the plaster is on. It is a common mistake to allow too little for the lath and plaster, with the result that moldings which should project from the face of the wall are back from it or partly buried under the plaster, thus missing the effect desired. About 1 1/2 in. should be allowed for the lath and plaster, making sure that the projection

LATHING.

The lath shall be painted to protect it until it can be applied and covered with Portland-cement plaster. Care should be taken not to expose the lath to the weather while it is lying about the building. Use metal lath weighing not less than 3lb. per square yard spaced at 12in. centres, and fastened horizontally over the furring strips with galvanized staples 1 1/2 by No. 14 gauge. The sheets between furring are to be tied with No. 18 gauge galvanized wire.

PLASTERING.

Portland cement will protect metal from corrosion absolutely by reason of its moisture-resisting qualities. Calcareous gypsum should not be used in combination with Portland cement; the gypsum will destroy the protective quality in the cement, and neither should it be used as a substitute for Portland cement. A gypsum plaster may repel moisture for a time, but Portland cement actually thrives on it.

It is not theory only that Portland cement will preserve iron or steel indefinitely; it has been well demonstrated that Portland cement stucco will endure in any habitable climate. The first and second coats should be of good thickness, and the finishing coat should have with it a mixture of water-proofing. A total thickness of plaster of about 1 1/2 in. is good practice. It is aimed for the first and second coats to get a Portland cement mortar with as little lime in it as will make it work properly. Clean long winter earth lath should be used. For the first and second coats and back plastering, mix in the following proportions:

Line Mortar. Two barrels of hydrated lime, 1yd. of clean sharp sand free from loam; four bushels cattle hair. Make up at least three days before using. Cement Mortar. Two parts of clean sharp sand free from loam; one part Portland

cement. Mix fresh in small batches as used. The lime mortar and cement mortar should be mixed and tempered separately, measured carefully, equal parts of each, and mixed well together. In plastering over the face of the stud and the lath, the plaster should be well through the lath, in order to fill entirely the space between the lath and the stud. The back-plastering should be a heavy coat, well trowelled, so that the lath is entirely enveloped. The finish coat may be done in a way to get any one of the many surfaces which give stucco its charm; this coat should contain no lime, as it makes the wall more porous, and if a lighter colour is wanted than can be gotten with ordinary cement, a white Portland cement should be used. The water-proofing acceptable to the architect should be mixed with the last coat of the exterior, according to directions given by the water-proofing manufacturer. The lathing and plastering on the inner side of the wall need not differ from ordinary practice. The exterior plaster must not be allowed to set rapidly; if necessary, hang a curtain in front of the wall or burlap or other material that can be kept moist for a couple of days. Stucco should never be applied when the temperature is below freezing.

STUCCO ON BRICK.

In applying stucco over brick chimneys a 3in. painted or galvanized steel furring-strip, not lighter than 22 gauge, should be fastened to the brick at 12in. centres with galvanized staples 2in. by No. 9 gauge driven into the mortar joints. The lath is fastened to the furring with No. 18 gauge galvanized wire, run through under the furring, and the same material used for lacing the ends of the sheets together between furring-strips. The same mixture for plaster is recommended for this work as on the metal lath on studding. Before plastering, the brick should be well wetted, to prevent its absorbing the moisture from the plaster, and the first coat should be forced through thoroughly so that the entire space back of the lath is filled with the Portland-cement plaster and the lath enveloped. — *The Contract Record.*

COLOUR-MUSIC.*

Professor Rimington's book will deeply interest all artists and musicians, and especially those who are convinced of the analogy of music to colour. The subject has occupied many minds in the past, and, of course, the exceedingly ingenious apparatus Professor Rimington has constructed and devised is not the first "colour-organ." Thirty-one years ago, according to a description in the *ENGLISH MECHANIC*, quoted from *Scientific American*, on April 24, 1881, a Mr. Bishop, of New York State, had built a colour-organ in which a series of coloured glasses, having shutters behind them, were connected with a keyboard in such a manner that when a given key was touched a shutter drops, and the light shines through the corresponding glass, and the ray is reflected on to a ground glass plate facing the spectator. The play of colour thus produced to correspond with simultaneously played music gratifies the two senses at once, and the listener feels more than understands the harmony established between melody and colour.

Some years before that, according to a Mr. F. E. Ballard, whose letter appeared in the *ENGLISH MECHANIC* of July 20, 1877, a Mr. Leonidas Clint Miles, in a book on "Water-Colour Painting," had proclaimed his theory that the order in which combinations of notes produce musical harmony produces with colours the harmony of colour. Mr. Leonidas Clint Miles, it was stated, was about to publish another work, in which he promised many striking instances of the union of principle and practice in the laws of an, and music's, optics, and acoustics. Whether that work ever appeared we do not know, but Professor Rimington's is a worthy contribution to the elucidation of the subject, and the evident outcome of long study and experiment.

Colour-Music: the Art of Motive Colour. By F. WALLACE RIMINGTON, A.R.E., R.I.A., Professor of Fine Arts, Queen's College, London. London: Hutchinson and Co., Paternoster-row, E.C. 4.

Hitherto, he contends, there has been no colour-art—that is to say, no art dealing solely with colour for its own sake, as music deals with sound. Colour has held a secondary position, and has always been more or less associated with form. Colour-music fills this gap. Colour-music will stimulate and develop the colour-sense, which is allowed to be dormant in a very large proportion of people. Emotional appeal, says Professor Rimington, is the root of all art, and if the action which colour has on us is to a large extent an emotional one, so also is that of music. As all music is built upon the octave, so also is there a corresponding octave of colour, with its lowest and highest points also separated by a proportionate increase of speed of vibrations, a fact which, it is contended, points to some common foundation or organic basis in nerve-structure or in mental constitution for receiving both colour and musical impressions. There are discords in colour as in music, each similarly produced by the simultaneous presentation of two notes or two colours pleasant in themselves.

Therefore Professor Rimington has designed and constructed his colour-organ, of which full illustrations are given for experimental work. He divides the spectrum band similarly to the music keyboard, gives the colour-organ a keyboard similar to that of the organ or piano, arranges for the general control of the whole keyboard by stops, and provides higher and lower octaves in the colour-sense, also relatively paler and deeper intensity, somewhat analogous, though not strictly corresponding, to the higher and lower octaves of the musical scale, though, of course, in the colour the wave-lengths remain the same. Whenever a note is depressed its corresponding colour appears on the screen, and if a chord is struck, combined notes make their appearance. The effect is thus described:—

"Imagine a darkened concert-room. At one end there is a large screen of white material, surrounded with black and framed by two bands of pure white light. Upon this we will suppose, as an example of a simple colour combination, that there appears the faintest possible tinge of rose colour, which very gradually fades away while we are enjoying its purity and subtlety of tint, and we return to darkness. Then, with an interval, it is repeated in three successive phases, the last of which is stronger and more prolonged."

"While it is still lingering upon the screen a rapid series of touches of pale lavender notes begin to flit across it, gradually strengthening into deep violet, and then becomes shot with amethyst, and afterwards hanging gradually into a broken tint of ruby, gives a return to the warmer tones of the opening passage."

A delicate primrose now appears, and with little runs and flushes of pulsation leads through several passages of indescribable cinnamon colour to deep topaz. Then suddenly intermingled with orange green and peacock-blue, with now and then a touch of pure white, it seems to feel the tremulousness of the *Meli-crucian* on a breezy day, and as the colour opens there are harmonies of violet and blue, and the music begins to tremble with mystery. More and more powerful they grow, and the eye revels in the depth and magnificence of the colour as the exultant strikes chord after chord, until the bass notes of the instrument are almost lost in the sea of sound."

"Then suddenly the screen is again dark, and there is only a rhythmic and echoing beat of a dying colour from time to time upon it. At last this disappears also, and there is another pause, then a hesitating tint of faded rose as at the opening of the composition."

"Upon this follows a stronger return of the colour, and as the screen once more begins to glow, a note after note of red and scarlet are produced, for the rapid crescendo which daily leads up to a series of staccato and fortissimo of pure crimson which almost startle us in the force of their colour before they die away into blackness."

For suggested modifications, and some idea of the almost infinite resources of the instrument, the possibilities opened up by the colour-organ, readers cannot get the better of ourselves as we imagine as he is that he is most materially helped to open the door to a new and healthful cultivation of a quality which we venture to say is second to none as regards the increase of the real happiness and interest of life.

SOME MODERN PROBLEMS OF ILLUMINATION.*

By T. THORNE BAKER, F.C.S., F.R.P.S.

During the past two or three years quite a large amount of attention has been paid to the subject of illumination, from more or less new points of view which have been suggested by modern conditions of living and working. Formerly it mattered little whether a candle, an oil-lamp, or a Bray's gas-burner were responsible for the lighting of a room, provided only that the illumination were sufficient. Now we require an illumination which must possess the maximum economy, the maximum of diffusion and distribution, and which must be of a colour required by the dictates of hygiene. The means of testing an illuminant, of modifying its light, and of producing an illumination which is physically nearest to what is ideal from the point of view of hygiene, and so on, are few, and are appreciated by the few only who have made this subject a matter for personal attention. I propose to deal briefly to-night with simple ways and means of producing an illumination as nearly resembling daylight as possible, which can be adopted by illuminating engineers and which will give results of sufficient accuracy to satisfy modern demands.

While so much attention is being paid to the subject of lighting, from hygienic and similar points of view, I think it seems fairly evident that its spectroscopic character should receive due consideration; but up to the present I do not think that the colour of light has been seriously dealt with by more than a few independent workers. We cannot, of course, compare the human body or the human eye with anything else; but it is interesting to note that the colour of light on living organisms and on vegetable life is in some cases extremely marked. I have a slide here showing how certain bacteria crowd together in specific regions of the spectrum, simply because these regions embrace the rays absorbed by the chlorophyll of the algal filaments present in the water, and, by the chemical change produced by this absorbed light-energy, obtain the maximum of food. I also showed a few months ago, at the Royal Institution, some remarkable effects of coloured light on the growth of bacteria, and more especially on the formation of pigment by bacteria, and on that occasion I stated the inference that one was led to arrive at—viz., that, while the ultra-violet, violet, and orange rays produced marked effects on many families of bacteria, the green-yellow rays in the middle of the visible spectrum were usually without effect. I also showed, from tests made in the laboratory, how, by projecting certain specified red rays into an experimental "vat" in which sugar was being fermented by yeast, alcohol was produced with abnormal celerity. A diagram of the apparatus employed is shown on the screen. These facts tend to show that the artificial light employed for the habitation of human beings should presumably be to which they are normally accustomed—viz., daylight—and a few months' investigations made with a view to determine the most suitable light for the eyes will lead to one result only—the demand for a light spectroscopically equivalent to normal daylight. Whether normal daylight is the best illuminant or not may, perhaps, be open to argument; but it can hardly be the case when we consider that man, through being accustomed to natural light for so many thousands of years, must naturally have become physically adapted to it.

Except in isolated cases of specialisation, the illuminating engineer has not closely associated spectroscopic methods with the practical side of lighting and illuminant testing, though now much valuable work is being done by Dr. Ives and Mr. Luckiesh. I have come across many instances in this country where industrial work has been hampered through the use of artificial light—ideal,

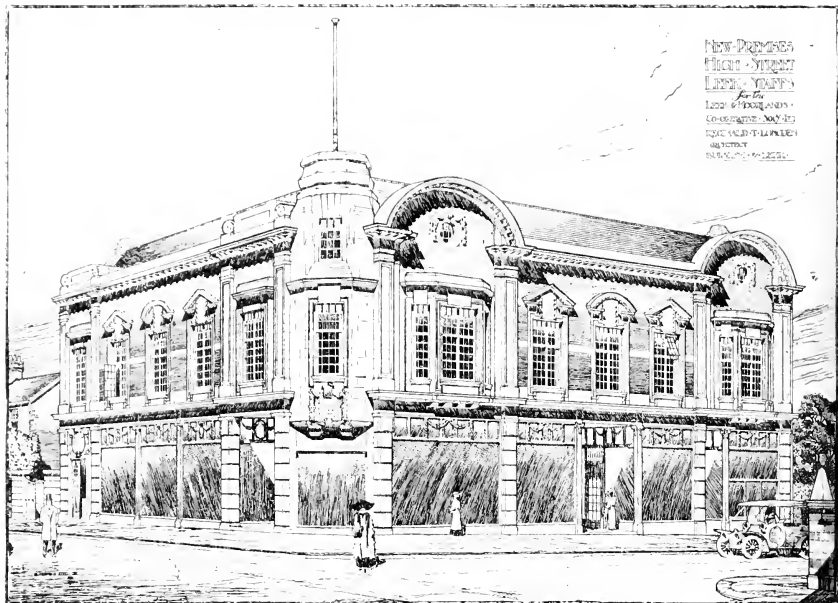
perhaps, from the engineer's point of view, but very deficient from the physicist's point of view. One example, of which there must be many hundreds of cases, was that of a factory where the printing of wallpapers was carried on. Considerable difficulty was always found, especially in winter time, in the matching and choosing of colours, and it was found that, when the daylight was good enough, the colour-matching—of the dyes, etc.—was done by it, whereas in dull weather it was carried out by the light obtained from carbon filament lamps. Considerable discrepancies naturally occurred from this practice, and a special lamp was made, in which I employed metal filament (tungsten) lamps and a suitable light filter, which gave filtered light spectroscopically equivalent to daylight, so that uniform colour-matching and the accurate selection of dyes and pigments was insured.

The spectrum of daylight itself varies within quite remarkable limits, as the slide now on the screen will show. You will see here the curves obtained by plotting against wave-lengths the densities obtained on a pan chromatic plate on exposure in the spectrograph to sky-light at various times—still evening, summer sunlight, when by atmospheric refraction the light is very yellow, and sky-light with direct sunlight, and with the sun obscured by light and heavy clouds, respectively. It was, the lecturer thought, well agreed that the best standard to adopt is white cloud light, and he therefore directed the attempts under discussion to the screening of various forms of illuminants so that artificial illumination physically equivalent to daylight is obtained. A description in detail of these will be found in the May's issue of the *Journal of the Royal Society of Arts*.

INTERESTING DEMONSTRATION AT A BIRMINGHAM STUDIO.

An artificial illuminant equal to daylight has long been sought after; but until recently, says the *Birmingham Daily Post* of Wednesday last, the wit of man has failed to discover it. For the ordinary illumination of factories and workshops, mercury-vapour has held first place for the last ten years. In places where colours are of importance, however, it has been impossible to use mercury-vapour, owing to the fact that those shades in which red appeared could not be accurately distinguished. But now an invention of Dr. Peter Cooper-Hewitt has removed this difficulty. By means of a fluorescent reflector the red and orange rays missing from the light of the ordinary mercury-vapour lamp are supplied. The value of the invention, apparently, cannot be overestimated. It may be applied to artificial lights of all descriptions. Apart from the failure to distinguish certain colours, objection to the mercury-vapour light has been made on account of the ghastly appearance any person assumed on coming within its rays. That objection, however, is also removed, inasmuch that the red, orange, or mercury vapour may now be applied to any purpose—workshop and factory lighting, stage lighting, and, of course, to studios where daylight, or something equivalent, is essential. So far only one installation has been provided in England—it is a German invention—and this has been fitted up at Mr. J. W. Beaufort's studio in Evesy Row, Birmingham. To a representative of the *Daily Post*, on Tuesday Beaufort gave an interesting demonstration. "I had it not been that the rain was pattering against the windows, it would have been difficult to realise that the light in which the room was bathed did not come from a sun in a clear blue sky. Yet when a lamp was dismantled of its reflector the change was remarkable: the light was still brilliant, but when certain colours were held up they could not possibly be accurately distinguished. Under the dismantled light one's personal appearance might have been compared to that of a corpse, but with the reflector in use, appearance was quite normal. For photographic purposes the invention is probably invaluable, and it is confidently asserted that the

* Paper read before the Royal Society of Arts on March 6, 1912.



NEW PREMISES
LEEK & MOORLANDS
CO-OPERATIVE SOCIETY
12001 & 12002
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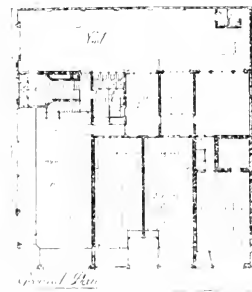
active value of the improved mercury vapour lamp is equal to forty times ordinary daylight.

A GRAND LETTER BOOK.

This is really a treasure mine for artists, craftsmen, decorators, show card writers, and sign writers. It contains several hundred alphabets in 140 plates, with the descriptive text, and a supplementary series of monograms, vignettes, and hands. It is really well printed on paper that does justice to the work.

But the real claim of the book to notice is that above all others its very large variety of different shaped letters is based on a proper plan of proportion, and all are simple in form and easy to read.

The series embraces English block letters, Dutch black letters, Roman letters, French letters, Script, Gothic, and German letters, Round Hand Script, Numerals, and Figures, and Modern and Foreign letters. There is also a most interesting series of various examples of old letters, Plate 16 showing a variety most decidedly in favour with artists.



NEW PREMISES FOR THE LEEK AND MOORLANDS CO-OPERATIVE SOCIETY.

These premises comprise drapery, millinery, book, binding, and butcher's departments, with the general offices of the Society, and two large trades-unions on first floor, and two kitchens on second floor. The elevations are in Alderley stone and sand faced brick work, and the roof of hand made tiles. The first floor of stores and main rooms is of oak and ash, and office fittings of oak. The architects were Messrs. Heath and

Sons, of Leek, and the whole, including fittings, was designed by Mr. R. T. Longden, architect, of Stoke, Burslem, and Leek.

A RECENT DISCOVERY IN MEDIEVAL ARCHITECTURE.

Mr. William H. Goodyear, M.A., Curator of the Department of Fine Arts, Museum of the Brooklyn Institute, contributes a review to the *American Architect* of a book published by Mr. Arthur Kingsley Porter, who claims to have discovered the origin of the Gothic rib vault. Incidentally, we are told, and yet more than incidentally, the original home of the rib vault is definitely established to have been in Italy, and more narrowly in Lombardy, whereas the most distinguished living French antiquarians have assigned its invention to France, and more narrowly to the Ile de France. In this department of the subject Mr. Porter has not only supported the conclusions of Rivoira, as regards the precedence in time of the rib vault in Italy and its influence on Northern Europe's conclusions which have been widely contested, but he has also verified these conclusions by a mass of new testimony from a number of hitherto unpublished and unnoticed early Lombard churches, which are now, for the first time, rescued from obscurity. This, however, is a necessary corollary of another demonstration viz., that the rib vault was invented in Lombardy as a means to the construction of a vault without a solid timber centering, and that the rib vault was borrowed from Lombardy by the French churches which immediately preceded the French Gothic for that reason. Not only was the manifestly desirable economy of timber and labour in question here, an economy especially advisable in view of the fact that the timber and labour were otherwise wasted on a purely temporary device, but the local features of Mr. Porter's demonstration point to the conclusion that the original invention was an absolute economical necessity in the territories where it

Lombardic Architecture. Its Origin, Development, and Derivatives. Translated by G. McN. Rushforth, M.A. London: William Heinemann. New York: William Heburn, 1910.

was first employed. In other words, the rib vault was invented where timber was not to be had, or where the ultimate price and difficulty of getting it were practically prohibitive of its use. Back of all this lies the undoubted and already known fact that vaults can be constructed without solid timber centering by the use of the rib vault, that they actually were so constructed in the Gothic period, and that the typical Gothic cathedrals could never have been built if solid timber centering had been the necessary preliminary to their construction.

Mr. Porter begins by pointing out that when the rib vault originated in the Romanesque period, the builders who employed it did not know that it would be developed into Gothic. The Gothic was impossible without it, but the Romanesque builders did not know that there was going to be any Gothic. Why, then, did they employ the rib vault, and ultimately use it exclusively in the transitional churches which mark the first steps toward the Gothic? This question is complicated by the following facts: first, that the groined vault has often been employed exclusively in very large and important Romanesque cathedrals—Speyer, for instance; second, that the groin vault was frequently employed in churches which also used the rib vault; and third, that the groin vault, not the rib vault, was originally the only form of cross vault with which the Romanesque builders were acquainted, whether in Italy or in France. In order to answer this question, Mr. Porter first quotes and then disposes of the two principal explanations which have so far been universally accepted as accounting for the rib vault. It is generally said, for instance, that aesthetic considerations favoured it, and that it was used because it was more artistic in effect than a plain groin. But this, as Mr. Porter points out, is only true of the developed and perfected rib vault. The earliest rib vaults were heavy, clumsy, and ugly. (Many of these primitive vaults, he remarks, have been personally found, described and published, for the first time, by our author.) It has therefore to be conceded that the contemporary groin vaults were more artistic in effect than the earliest rib vaults which displaced them. Another and a universally accepted explanation is that the ribs concentrated and took up the thrusts of the intermediate vaulting, and were therefore devised as a means of concentrating thrusts. But here Mr. Porter shows that the Italian builders, who are supposed to have purposely concentrated these thrusts, took no pains to resist them after they were so concentrated. In fact, they were so indifferent to the problem of thrust that they almost wholly neglected it, to the very great detriment of the same buildings. Our author also shows that the joints of the groins served the same purpose as the ribs, in so far as concentrating thrust is concerned, because the surfaces of the vaults were generally domed so as to bear on the groins. As to durability and strength, there is no great preference as between the two systems, although some advantages must certainly be conceded to the rib, aside from its importance as a centering. On the other hand, the comparison of both systems in numerous instances, where both kinds of vaults were built in the same church, shows that the groin has stood the test of time as well as the rib. The present accepted and universally taught explanations for the use of the early rib vaults are thus evidently untenable, when the subject is examined.

In contrast with these explanations, Mr. Porter has already been briefly mentioned, and his proofs have now to be rehearsed. They rest on the admitted fact, as developed by Viollet-le-Duc and Choisy, that solid timber centerings were not employed in the typical Gothic buildings. Timber centerings were confined to the ribs; from these ribs the vaults were constructed by doming (or arching upward) the centres between the ribs, which thus were self-supporting arches on their own account, as soon as a given course between two ribs was in position. A single movable and expandable piece of

centering was used in laying these successive courses, and even this was dispensed with up to a certain height of the ribs, as related to their intermediate and increasing width, which made a change in the size of the masonry blocks at the point where the centre began to be used. If the masonry builders used the ribs as a means of vaulting the spaces between the ribs without timber centering, it seems a self-evident proposition (as soon as someone has suggested it) that the ribs were originally invented to serve this purpose. But it is exactly this self-evident proposition which has never been developed by the standard authorities. Mr. Porter is himself an involuntary witness on this subject, because he published in 1903 a history of the origin and development of Medieval architecture. This work is a very complete summary, up to date, of the results of the standard authorities on the history of Medieval vaulting. The wholly original side of the book is its unparalleled series of bibliographies, including an enormous number of monographs on individual churches, and its collection of a voluminous list of authorities for the statements in text. We shall not find, however, that any of these authorities, or Mr. Porter himself, at that date, had offered the explanation of the rib vault which now appears so obviously to be the only true one; after the proof has been furnished—viz., that it was devised as a means to economy in timber. The materials for this proof have been gathered, since 1903, by a laborious study largely by Alberto Arca, a learned and able scholar, who is now known or neglected Lombard churches, many of which were sought for after the first clue had been found, and which supplemented the original suggestive idea in material points. Among these churches are those of Sanzauro Sesia and Lomello (c. 1025). These have already been published in independent monographs by Mr. Porter, in the Italian archaeological journal, *Arte e Storia*. The vaulted churches of Corneto Tarquinia have also, for the first time, been subjected to critical study and rescued from antiquarian neglect. Among the corroborative proofs of the general thesis, is an analysis of the early rib vaults of France, showing that their peculiarities, and their evolution in the direction of Gothic traits, are all to be explained by the simple principle of the effort to economize in timber centering. But the rib vault was not studied in Lombardy about eighty years before it was borrowed in France. Italy had previously learned from Byzantine art the construction of groined cross vaults, with a skeleton timber centering which was confined to the diagonal groins and the four bounding arches, the intervening vault surfaces being arched upward (domed), and built with the use of the centre. This system was available for aisles, but not for nave vaults, because the timber centering arches, under the groins, were too frail to support the weight of a nave vault pending its completion. The masonry rib, generally of brick in Italy, was therefore originally devised as a stronger and permanent centering. As soon as completed, it took the place of the timber skeleton centering, and fulfilled the same mission, with the necessary additional strength. A remarkable illustration of this phase of the given evolution is the fact that the Lombard rib vaulted church only used the rib in the nave, and that they continue the use of groin vaults in the aisles, in which the ribs are never found, evidently because they were not needed where the skeleton timber centering had the requisite strength. In France, on the other hand, where the system was borrowed, after the evolutionary stage

of Medieval Architecture; its Origin and Development. Two vols. New York: The Baker-Taylor Co. 1909.

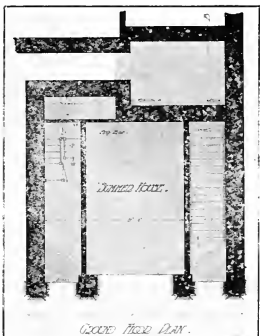
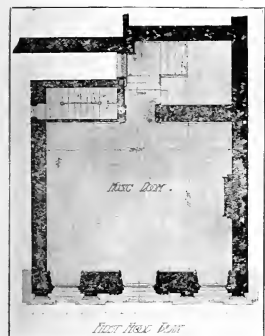
was passed, both the aisles and the nave are rib vaulted, wherever the rib was introduced into naves. Other interesting proofs for Italy are obtained by Mr. Porter from a study of the vogue of the masonry vault in a given locality as related to the scarcity of timber. In the territory of Como, for instance, where timber was abundant, there is not a single vaulted church of the Romanesque period. In the not far distant territory of Milan, where timber has always been scarce, and must have been especially so when roofs were bad, and territorial wars and wars were constant, brick vaulting was general, and here the evolution of the rib vault occurred. By similar reasons the remote and isolated development of vaulting at Corneto Tarquinia, south of the Maremma, is again explained. According to Mr. Porter's conclusions in this direction, not only the use of the rib vault, but even the use of vaulting, as opposed to that of timber roofing, was mainly determined in Italy by considerations of economy in timber. Our author is careful to point out that solid timber centering was used, under certain conditions, for rib vaults, for instance, in the first introduction in France. He quotes later Gothic examples where solid centering was certainly used, and gives the reasons for these occasional and exceptional cases. As regards Italy, he also rehearses the history of the decline and ultimate relative disuse of Romanesque vaulting, and of the rib vault in Lombardy, and he shows that the higher development of the rib vault is only found in France during the formative period of the Gothic. Whereas an almost total dearth or prohibitive scarcity of timber is proven to have been the rule in the Italian localities where the rib vault was first invented, so that the first invention was really a compulsory necessity when vaulted naves were in question, a broader view of the question is needed for France, and here the relative economy of timber used for the skeleton centering of masonry vaults, contrasted with solid timber centering for entire vaults, is held to be the initial and primary explanation.

The following points have to be especially considered here. The Byzantine system of building domed groin vaults over aisles, or in crypts, with a skeleton timber centering confined to the circum-arching arches and their diagonals, was not known in France until it was introduced from Italy about the same time with the rib vault. It was in France, at this time, or later, was wholly exceptional. Thus the French had been using solid timber centering even for groined cross vaults before they borrowed the rib vault from Lombardy. As for other primitive vaulting systems in France—viz., those of the continuous barrel vault and of the transverse barrel vault, they could not be erected without solid timber centering. Another contrast with the still more recent, the evolution of the Romanesque Medieval church was not an evolution in which improved methods of vaulting were applied to churches of the same size, or of the same simple plan, which are found in those of older date in which the improved methods were unknown. There was a constant growth in the average dimensions of the larger churches, and a constant growth in their complexity of plan. Now, when a groined cross vault was to be built, it is, of course, uneconomical to use a solid centering, even for a small vault, and it is much more difficult and much more wasteful to use solid centering for a large one, but it is still physically possible to do it. But when the trapezoidal plans of the vaulted spaces, the ambulatories and choir are in question, the construction of a solid centering is physically impossible, because the most expert geometers could not project in advance the varying curvatures, twisted surfaces, and spherical complications (increased by the doming) of the vaulting surfaces, so that they could be moulded into the surface of a solid timber centering. To say nothing of the prohibitive expense of such an effort. Thus the rib vault was not only an economy; it was also a necessity, in the evolution of the later plans of the French Romanesque

The apse at Palencia is shut in with screens covered by a groined gallery, curiously occupied by an unimportant dark chapel. Behind the High altar is a wall which shuts off the first bay of the choir west of the apse, the next two bays westward being walled in on the north and south, and extending so far as the transepts, which is open, excepting the railings defining the passage from the choir to the choir. The effect is confused, and it is contrary to the original and evident intention of the planners of the building. A level processional path round the aisles has been formed by lowering the eastern floors of the church to the extent of 3 ft. in some parts.

SARDINIA HOUSE, LINCOLN'S INN FIELDS.

This new building, only one door from Kingsway, closely adjoins the site of old Sardinia House, and is immediately opposite the proposed new offices of the Public Trustee and Lunacy Commissioners. The building is of red brick and Portland stone, and it is of fireproof construction throughout. It has eight floors, including the basement, all of which are arranged for use as



EIGHTEENTH-CENTURY SUMMER-HOUSE AND MUSIC-ROOM.

offices. The average letting floor-space on every story is 3,000 ft., and there is lavatory accommodation on each floor for principals, and for clerks in the basement. Separate accommodation for ladies occurs on the top floor. Special attention has been paid to saving of passage-room. The building has been finished about three months, and the floor-space is already let. The builders were Messrs. King and Arnell, Ltd., of No. 255, West End Lane, West Hampstead, and the architects Messrs. Trehearne and Norman, who occupy offices in the building. This firm is now erecting the "Central House" in Kingsway, at the corner of Kemble street.

BARRINGTON COURT AND PARSONAGE FARM, STOKE-SUB-HAMDEN, SOMERSETSHIRE.

Barrington Court was acquired by the National Trust in 1907, after having been utilised as a farmhouse for many years, during the greater part of which period, however, the structure seemingly had not suffered so much as might have been the case. Barrington Court, though denuded of its interior finishings, is an incomparable example of a finely proportioned Tudor house, excellently planned, and admirably adapted to its site and our climate. The hall, which contains the original fireplace, is not distinguished externally by any special treatment. The aspect of the house is towards the S.E., and Mr. Follett's carefully-measured plan is marked by its principal dimensions. It is doubtful whether the furnishings of the house

were ever completed during the days of its builder, Henry Lord D'Aubency, a favourite of Henry VIII., who died in 1548, shortly after which date the property was allocated to the Crown. It has been remarked how singular it is that Barrington Court embodies no evidence of heraldic devices—a fact the more unaccountable seeing that its builder, created Earl of Bridgewater by the King in 1539, was personally connected with the pageantry of the Court and fully cognisant with such matters. Another point about Barrington is its freedom from the influence of architectural precedents, and this may be due to the circumstance that no other building remained on the site to be incorporated with the mansion. It was built of Ham Hill stone. Much of the interior work belonged to the days of Queen Anne. Edward VI. gave the estate in 1553 to Henry, Duke of Suffolk, who sold the property to William Clifton. This family retained it till 1665, at which date Barrington passed by purchase into the Montacute estates when Sir Thomas Phelps became the owner. His heir raised money, however, upon the property by mortgage in 1621, the result being that the

which this structure was originally situated fell into disuse, and were subsequently built upon. The music room was subsequently used for some time as a Masonic lodge, and is now occupied as a studio by Messrs. A. Seward and Co., Ltd., the stained-glass artists.

JACOBÆAN PEWING, MESSING CHURCH, ESSEX.

Messing was anciently written "Massinges" and "Mettings." The village and parish are situated close to the borders of Tippee Heath, which is partly within this parish. The Church of All Saints is an ancient building of flint with stone dressings, and somewhat mixed in style. The building consists of nave, transept, tower, and chancel, which last is lined with oak panelling, obviously of the reign of James I. This oak panelling was restored some while ago by the Earl of Verulam, and is believed to have originally belonged to the old hall. A tomb to commemorate William de Messing, founder of the church, formerly occupied a recessed arch in the north wall; but this has unfortunately been destroyed. There remains, however, the brass figure of a lady dated c. 1530, though the inscription is missing. The east window is filled with stained glass, supposed to be by Van Linge. During the Civil Wars this glass was taken out and buried in an ancient solid oak chest until peace was declared. It was then unearthed and reinstated. The President of the British Archaeological Institute, during a recent visit stated that in his opinion this panelling was one of the finest pieces of its kind to be seen in the country. We are indebted to Mr. E. S. D. Fromant, of Colchester, for the loan of these details. The recent underpinning of the south porch and wall of Messing Church was carried out under the supervision of Mr. J. W. Start, architect, of Colchester.

CHIPS.

The urban district council of Kettering have adopted amended plans by the surveyor for a new corn-exchange, estimated to cost £2,700.

Plans have been approved by the corporation of West Ham for building baths in Oriental-road, Silverdown. The estimated outlay is £12,000.

The memorial stone of the completion of St. John Baptist's Parish Church, Southend-on-Sea, was laid on Wednesday. The total cost was £5,000, of which £3,000 still remains to be raised. The additions provide accommodation for 150 more people.

The corporation of Croydon have appointed Mr. J. H. Walters to the position of borough surveyor, water engineer, surveyor to the U.D.C., sewage works engineer, and inspector of markets and fairs, at a salary of £150 per annum, rising to £200.

It is officially stated that the condition of the famous Gildes Church, at the west end of Durham Cathedral, is such as to render its continued use unsafe. The dean and chapter announce that the daily services hitherto held in the chapel will be conducted in the nave of the cathedral until further notice.

In the near future the improvements committee of the London County Council will recommend a contribution of half the cost of widening Leadenhall-street, which is to be undertaken by the Corporation of London at a cost of £252,600. A short time ago the council refused the grant for this improvement, negotiations for which were begun twelve years since.

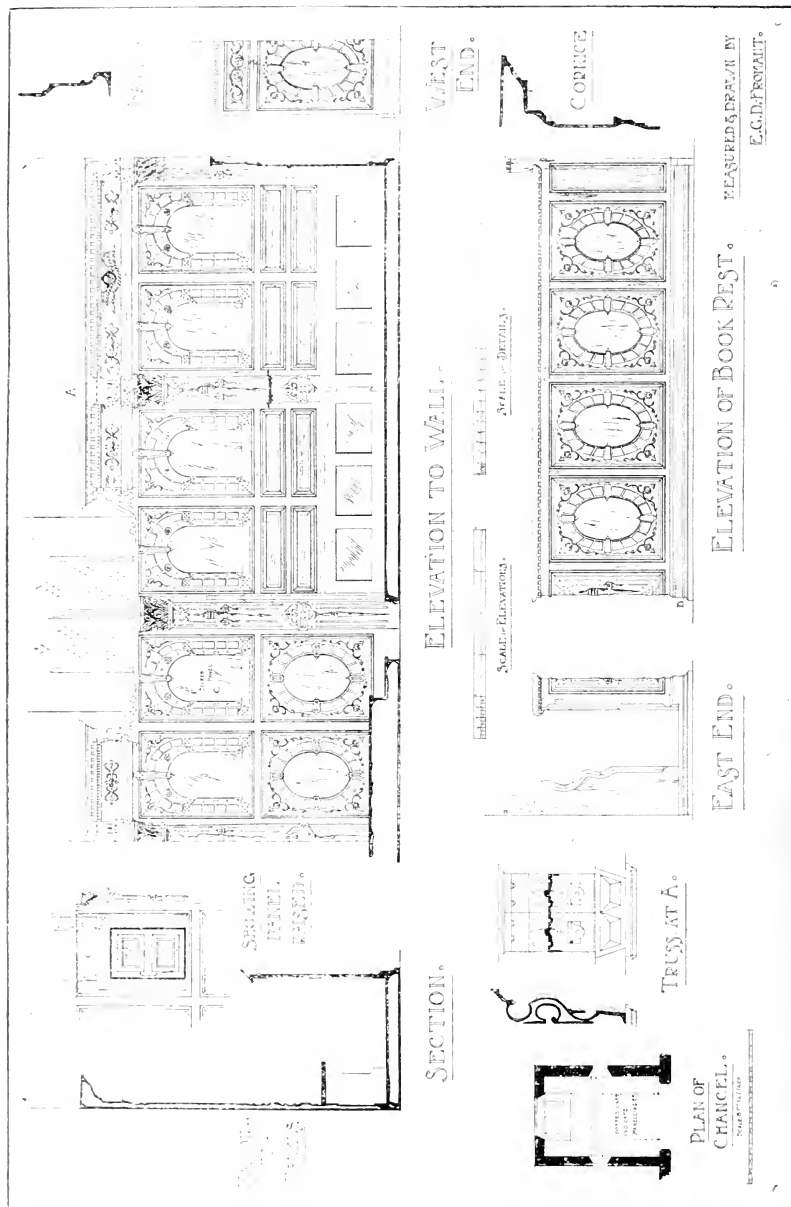
The Bishop of Truro dedicated the new altar in the Chapel of the Intercession, Lis Escop, on Sunday. The altar is of oak, and was designed by Mr. Edmund Sedding. The Jacobean style is also in keeping with the chapel, in the centre of the front panel of oak is a small oval panel containing the Cross and other emblems of Christ surrounded by a border of foliage projecting above the ground of the panel.

The death has occurred at Lee, Kent, in his eighty-second year, of Mr. Walter Hartley, for many years the head of a firm of builders and sanitary surveyors in Cannon-street. He was a member of the City Corporation from 1879 until 1915, in succession to his father, who had been a corporation member for 50 years. He had also served as Master of the Salters' Company in 1893, and was rector-warden of the Painter-Stainers Company in 1890-91.

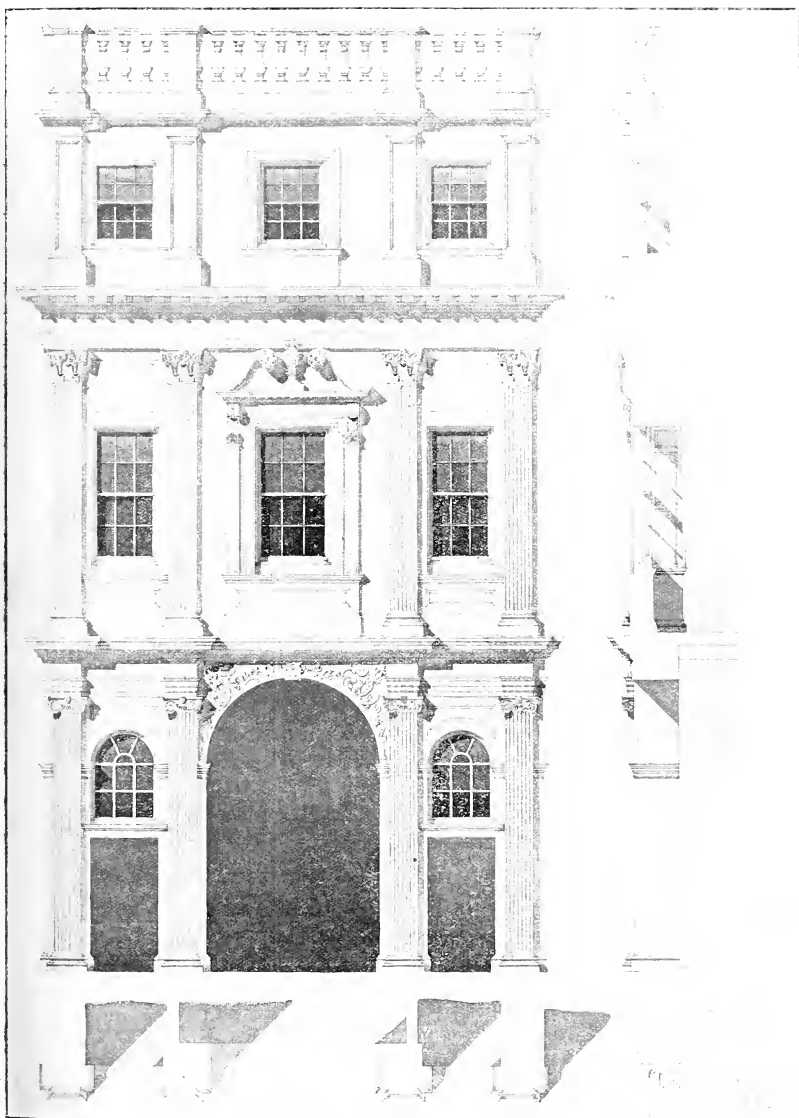
strodes before long possessed the holding, which their family retained till 1755, after which the period of neglect and inferior occupation seems to have set in, till, fortunately, this beautiful building was saved from demolition, as above mentioned, by public subscription.—The Parsonage at Stoke-sub-Hamden, hard by, was erected as a clergy-house for five chaplains, and endowed as a chantry. It has been long used as a farmhouse, but the bell-turret on the front gable still remains. The screen and gallery over it in the hall have been removed. Illustrations of Stoke-sub-Hamden Church will be found in the BUILDING NEWS for August 17, 1883. It is an extremely interesting example of Early work with two hagioscopes. The drawings given herewith to-day are the work of Mr. S. G. Follett, Pugin Student of the R.E.B.A.

EIGHTEENTH-CENTURY SUMMER-HOUSE AND MUSIC-ROOM, LANCASTER.

This structure was erected in the early part of the 18th century, in the Town Garden, afterwards in possession of Rev. Dr. Marton, vicar of Lancaster, 1767 to 1794. It was adjoined on three sides by other buildings which accounts for its peculiarity. The ground floor was utilised as a summer-house, and the first floor as a music-room. This room is elaborately decorated with beautiful plasterwork of Italian workmanship, including busts of the Nine Muses, the Cæsars, and others, with groups of musical instruments, weapons, etc. The gardens in



JACOBEOAN OAK PANELLING. ALL SAINTS' CHURCH, MESSING, ESSEX.



EIGHTEENTH-CENTURY SUMMER-HOUSE AND MUSIC-ROOM, LANCASTER.

Measured and drawn by Mr. J. M. CLARKE.

"TESTING OF MATERIALS" USED IN REINFORCED CONCRETE."

By Mr. A. ALBAN H. SCOTT, M.R.Sab.Inst.,
Member of Council S.A.C.

(1) When I was honoured by the invitation from your President and the Council to give a paper on "The Testing of Building Materials," I originally thought of treating the matter from a broad standpoint with regard to the various materials used in ordinary building construction; but upon further consideration I came to the conclusion that concrete and reinforced concrete were now being used so extensively and for such a variety of purposes, and its possibilities are so extensive, that it required at the present stage some further careful investigation by architects, both as to the strength and properties of the various units, as well as the finished material.

(2) The necessity for some very serious consideration has been particularly impressed upon my mind, in view of the fact that certain figures are being laid down as the ultimate strength of concrete by the various reports and regulations issued comparatively recently.

(3) These figures seem to have been based upon results obtained from laboratory made specimens only, made under the most favourable conditions, without any allowance for the more or less rough methods which are only obtainable at present on the actual construction. In making some of the laboratory test specimens, the materials are very carefully gauged, thoroughly and evenly mixed, and in the case of the ordinary punning and slight ramming if any, you get on the works, they are subjected to pounding down with a heavy hammer, and thus getting an artificial result a result which is impossible to attain under the most perfect conditions obtainable on even a perfectly organized job. The test results which we shall have before us this evening are such that they are reasonably expected from work executed under such specification such as we published last year but even these results can only be expected if professional supervision is given, not only to the general work, but also to the most minute points. In the past there has been a difficulty, for reinforced concrete demands greater study than any other material used in constructional works.

Architects, except for a comparative few, have until recently been too slow in making themself acquainted and proficient in this class of construction. Engineers were still worse, and clerks of works and general foremen who are really fit to take charge of a first-class job of reinforced concrete are few and far between. All this, however, is now being rapidly changed, and it has been realised that concrete and reinforced concrete are entirely different materials.

It has always seemed to me to be in the first instance to take the precautions to obtain cement of a high and even quality, and treat the other component parts as if their ultimate strength of the concrete did not depend upon their influence.

(4) The following is an outline procedure I would suggest should generally be adopted with regard to the testing of materials for reinforced concrete work.

(5) All tests should be made at an independent testing and civil engineering works.

(6) Testing of Cement.—The cement to be tested from samples taken from the bulk, such samples being taken from various positions of the bins at the maker's works. After the cement has arrived on the job, samples again taken from various bags, thoroughly mixed, and again tested. Further tests made from time to time as the material is being used in the works, the number of these tests can be regulated according to the nature of the cement, and the time taken at once.

(7) All tests on cement should be made in accordance with the latest specification of the Portland Cement, and the further test for activity may be carried out by thrusting stress of both neat cement and also cement and sand, in the

	Size	1	2	3	4	5	6	7	8	9	10	11	12	Not graded
1. Thames sand	Parts	1	1	1	1	1	1	1	1	1	1	1	1	
2 Sea sand on shore 26 years	Parts													
3 Ordinary Thames sand	Parts													
4 River sand	Parts													
5 Sand from crushed rock	Parts													
6 Crushed rock	Parts													
7 Thames ballast, graded	Parts													
8 Sea ballast	Parts													
9 Ballast and sand as from bank to pass only and not retained on sieves	Parts													
10 Thames sand and ballast not crushed	Parts													
11 Sea sand and ballast	Parts													
12 Standard sand	Parts													

same proportions used for the tensional briquettes.

(8) Aggregate or Coarse Material.—A sample in bulk to be delivered on to the works, a sample taker and tested—first, for freedom from loam and other foreign matter; second, for the proportion of the various sizes of the crushed material; third, for the amount of voids; fourth, for specific gravity. Tests repeated on the material being used in the works, from time to time as may be considered desirable.

(9) Sand.—Sand to be treated in exactly the same way as aggregate, and, in addition, a test for the amount of material that will pass a sieve of 1.5mm. by 1.5mm. apertures should be ascertained. This, which can be called "flour," should be rejected.

(10) Water is tested to see that it contains no unusual or injurious properties.

(11) Steel to be first inspected at the maker's works with a view to ascertaining—first, whether welds have been made; second, for surface defects; third, correctness of diameters.

(12) Every rod over 2in. diameter must be stamped with a die having been inspected. Sample lengths are taken from the actual rods, which are duly stamped and sent to the testing works for the purpose of ascertaining—first, their ultimate strength; second, their elastic limit; third, their elongation and contraction of area; fourth, to observe the structure of the metal at fracture, whether the fracture is granular, or fibrous, or fibre-bonding test. All these tests to apply to rods and wire from and including 3/16in. diameter and upwards.

(13) Concrete. The test specimens of concrete should be of a standard size of 6in. cube. Six specimens made for each test, three made in the laboratory and three on the works. The cement for each six sets of specimens to be taken from the same cement. The laboratory tests specimens should be made, as far as possible, on practical lines, so that the result should be such as can be reasonably expected from concrete in the actual work.

(14) All specimen pieces made on the works should be made from concrete taken from the actual mixing platform. All such specimens should be made in metal moulds, and the concrete worked in by punning and tamping to the same degree as has actually taken place in this structure. Six test cubes should be used for each test, and the minimum tests should be made at the following periods: Seven days, 28 days, 56 days, 90 days, and one year.

For the purpose of record and research work such tests should be carried out at the following periods: Seven days, 28 days, 56 days, 90 days, 6 months, 9 months, 12 months, 2 years, 3 years, 4 years, and 5 years.

(15) Centering.—No mechanical tests are required for this; but when the strutting is being placed into position, rough calculations should be made, to see if any undue deflection or movement is likely to take place during the process of placing the moist concrete into position, and inspection made to see that the joints have been properly filled up by rubbing with hard bar soap or other material, to prevent dripping of the cement and sand.

(16) We might now consider whether the tests mentioned above are reasonably required, and before proceeding to do so, a few remarks on the work the material is called upon to do may not be out of place. In reinforced concrete the concrete takes compression and shear; the steel taking all the tension and assisting for shear and compressional strains. The concrete being stressed to not more than 600lb. per square inch in compression, and 100lb. per square inch in shear; the steel in compression beams not more than nine times per square inch that of the adjoining concrete, and in columns not more than fifteen times that in the adjoining concrete, and steel in tension 15,000lb. per square inch, and the adhesion of the concrete to the steel 100lb. per square inch of actual contact.

(17) These figures being subject to various conditions, such as the efficient tying in of the steel in compression, to prevent bulging of the rods, proper proportion of metal to the concrete, and spacing of the steel. In the case of columns the effective area of concrete is only taken as that part which is hooped in by the ties to the vertical steel members.

(18) If we are working to a factor of safety of a fourth of the ultimate, the ultimate resistance to thrusting stress of the concrete should not be less than 2,400lb. per square inch, the resistance of concrete in shear 600lb. per square inch, and the steel 60,000 per square inch ultimate tensile.

(19) These figures show that all the materials are called upon to be of high efficiency, and to work in harmony and simultaneously together, and have been adopted in consideration not only of their ultimate resistance, but also the relative coefficient of elasticity.

(20) The work is designed on the assumption that the materials actually used in the construction are capable of resisting these stresses.

(21) The following are a few reasons why the author considers the tests necessary—

Aggregate and Coarse Material.—It has been found that most aggregates (unless washed) contain loam and other foreign matter. A sample of river aggregate recently tested gave as much as 7 per cent. of loam, and most loams have a surprising covering power, being of the very finest of "flour," and, consequently, when the

cement is added there is a thin film between the cement and the actual surface material, thus preventing the cementing together of the particles.

Some time ago it was advocated in certain quarters that the presence of loam in aggregate did not decrease, but rather increased, the strength of concrete; a slight mistake was made there: the material which was mistaken for "loam" actually contained certain cementing properties which had the effect of making the concrete a richer mixture.

(23) With aggregates which are practically uniform in size, or if the various sizes are not properly graded, proper bond is not obtained between the various materials as the mortar is concentrated, and thus a portion of the mixture is deficient in cementing materials; therefore it is most desirable that the grading and voids should be worked out very carefully, and with certain exceptions, it is found, within limits, that the grading which gives the smallest amount of voids in the aggregate and sand results in concrete of greater strength. With aggregate and sand containing a high percentage of voids, a greater proportion of cement is required.

It is possible to arrange these results in various ways, but the annexed table may be found convenient.

(25) In this connection it should be remembered that as the number of particles increase, so the proportion of the cement to the whole should be also increased, owing to the greater covering power required. A table made with a very small amount of aggregate and a large amount of sand, with the usual proportions of cement, gave an ultimate resistance to thrusting stress of about 600lb. per square inch; such low result was entirely owing to the fact that the usual amount of cement in that case was not sufficient to properly cover each particle of the cement and aggregate, and a perfectly cemented and homogeneous mass was not obtained.

(To be continued.)

The late Mr. Thomas Miller Rickman, A.R.I.B.A., the well known quantity surveyor, of Philbeek-gardens, Earl's Court, President of the Architectural Association in 1854-55 and President of the Surveyors' Institute in 1899, who died on February 10, aged eighty-four years, left an estate the gross value of £16,931.

The arbitrator's award as to the purchase price to be paid by the corporation of Belfast for the Cayhill and Whitehall Townways was £36,155. With this the corporation disagreed, and the matter was taken to court, the award being set aside. After further inquiry, however, a second award of the same amount was made, and this time the award was upheld by the Court. The Corporation has now decided to abide by this decision.

Lieutenant-Colonel A. Charles Smith, Royal Engineers, died at 87, Cadogan-gardens, on the 3rd inst., aged 70 years. Lieutenant-Colonel Smith served in many parts of the Madras Presidency, becoming there superintending engineer and later chief engineer. On retirement in 1894, he was named an appointment in the engineering department of the Local Government Board. He retired from that department four years ago, and afterwards resided in London.

Sir Benjamin Scott, Mayor of Carlisle, has presented to the corporation art-gallery of that city the picture known as "The Cricket Match," by the famous Cumberland artist, Sam Brough. On the occasion of his retirement from the position of borough engineer and surveyor of the Southport, Lancs., Mr. Richard Hirst was presented with a gold watch, suitably inscribed, by the workmen of the highway, cleansing, and sewage-works departments of the corporation.

At Bristol University on Monday night, Mr. Henry Aldridge, secretary of the National Housing and Town Planning Council, gave the first of three lectures on "Town-Planning in Practice." He described the course of legislation on this subject in various countries, and gave details of the new powers conferred on local authorities in England and Scotland. Next morning he will deal with the question in relation to public health, municipal economy, and the provision of amenities, and in his third, and last lecture, to be delivered on the 18th inst., the topic will be "Town-Planning Administration in the Future."

PROFESSIONAL AND TRADE SOCIETIES.

A M A L G A M A T I O N O F T H E AUCTIONEERS' AND ESTATE AGENTS' INSTITUTIONS.—The amalgamation of the Incorporated Estate Agents' Institute with the Auctioneers' Institute of the United Kingdom (Incorporated) was formally agreed to at an extraordinary general meeting of the Estate Agents' Institute held on Tuesday at Hanover-square. Mr. Howard Frank, the president, was in the chair, and there was a large attendance of members, including Mr. James Boyton, M.P., who is a past president of both organisations. It was resolved to wind up the Estate Agents' Institute voluntarily. Mr. W. H. Wells and Mr. W. J. Taylor being appointed to carry out the formalities.

ARCHITECTURAL ASSOCIATION OF IRELAND.—A general meeting of the above society was held on Tuesday week. The president, Mr. Page L. Dickinson, M.R.I.A.I., occupied the chair. Mr. Connor O'Brien read a paper entitled "The Development of the Gothic Style of Gothic Architecture in Ireland," which was illustrated by numerous photographs and lantern views of the principal ecclesiastical buildings erected in Ireland between the 12th and 14th centuries. Mr. Connor O'Brien found a precedent for the development of a national Gothic style in the work done in Ireland during the 13th and 14th centuries, when great originality of design and independence of treatment were shown by the Irish builders. The lecturer also called attention to the excellent carving and workmanship to be found in many of the tombs and memorials to the dead in our abbeys. In proposing a vote of thanks to the lecturer, Mr. R. M. Butler, M.R.I.A.I., suggested, as an explanation of the great difference in detail and treatment often to be found in buildings of the same period in Ireland, that many of these buildings owed their erection to the English colonists, and so naturally differ in their details and mouldings from those built by the Irish people. Mr. Geo. L. O'Connor briefly seconded the vote of thanks, which was supported by Mr. P. J. Lynch, M.R.I.A.I., and Professor Scott.

EDINBURGH ARCHITECTURAL ASSOCIATION.—A lecture on "The Restorer and His Attitude Toward Old Work" was delivered by Mr. William Davidson on February 28. Mr. Davidson, who dealt mainly with ecclesiastical restorations, opened his lecture by dividing restorers into three classes—viz. Historical, Antiquarian, Esthetic, and Ritualistic. The attitude of each was described. The lecturer stated that, for the ideal restoration, all four standpoints must be considered, and, while a profound reverence and veneration must be felt for all existing beautiful old work, it must be remembered that a church must be suitable for its purpose as a place of worship, and not considered merely as a sanctified relic of the past. The historical and beautiful composition being absolutely imperative. The architect should not make the restoration an opportunity for the display and glorification of his own personality at the expense of the history of the building; but at the same time a sentimental zeal for the work of the dead should not prevent him from creating a beautiful and perfect unity where such was possible. Mr. Davidson referred to the recent intervention of "antiquarian" and "protection societies," and maintained that the craze for preserving past history, if carried to its logical conclusion, would lead to a dead stop in the architectural history of old buildings, which, if occupied for their original purpose, still had a living history. He admitted, however, that unused ruins—such as Holyrood, Linlithgow, Melrose, Fountains, Kirkstall, etc.—were, as a rule, best only left as relics preserved, and not restored. Many views were shown of restorations by Sir Gilbert Scott, Bodley, Oldrid Scott, Temple Moore, Micklethwaite, Weir, Caroe, and others, which were analysed and criticised.

GLASGOW.—An instructive paper was

read last Friday night before the Royal Technical College Architectural Craftsmen's Society, by Mr. Robert Moon, on "Various Timbers and their Practical Uses." The lecturer referred to the rapidity with which supplies of the timbers presently in use were becoming exhausted, and confined himself mainly to the woods of the future, which must come from the giant forests of Western America. These, with the opening of the Panama Canal, should be placed on the British market in greater quantities and at lower rates.

HAMPSHIRE ASSOCIATION OF ARCHITECTS.—At a meeting of representative architects of the county, held at Southampton on Saturday last, it was decided to form a Hampshire Association of Architects on the lines of those affiliated to the R.E.A. Mr. R. F. Chisholm, F.R.I.B.A., presided. Draft rules were considered and passed, also declarations to be signed by members, associates, and associated craftsmen, the subscriptions being 10s. for members, and 5s. for others. Sir William Portal, Bt., F.S.A., proposed by Mr. R. M. Lucas, seconded by Mr. H. G. L. Hill, was elected president; Mr. N. C. H. Nisbett, A.R.I.B.A., proposed by Mr. W. W. Winesley, seconded by Mr. A. F. Gutteridge, was elected vice-president and chairman of committee; and Mr. R. M. Lucas was elected hon. secretary and treasurer, with Mr. Inglton Sanders assisting. Communications from those desirous to join the association, should be addressed to Mr. Lucas at Bargate Chambers, Southampton.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. J. J. Burnet, Hon. LL.D., R.S.A., architect for the extension of the British Museum, delivered an interesting lecture on Monday evening in the Liverpool Architectural Society's rooms, 13, Harrington-street, under the presidency of Mr. Thornely. Mr. Burnet described in detail quite a multiplicity and variety of designs executed by himself in preparation for work done in various parts of the kingdom. Illustrative photographs and drawings of which served greatly to enhance the effect of his descriptions. The lecturer was cordially thanked at the close.

LONDON MASTER BUILDERS' ASSOCIATION.—The fortieth annual general meeting was held in the Council Chamber, Koh-i-Noor House, Kingsway, W.C., at 4 p.m. on Thursday, February 29, 1912. The president, Mr. G. Bird Godson, presided, and afterwards Mr. James S. Holliday, the newly-appointed president. The following officers and members to fill up the vacancies on the executive council were elected for the coming year:—President, Mr. James S. Holliday (Messrs. Holliday and Greenwood, Ltd.); senior vice-president, Mr. Walter Lawrence, junior (Messrs. Walter Lawrence and Son); junior vice-president, Mr. W. F. Wallis, J.P. (Messrs. G. E. Wallis and Sons, Ltd.); treasurer, Mr. Edmond J. Hill (Messrs. Higgs and Hill, Ltd.); council, Mr. C. E. Allen (Messrs. Allen and Co., Ltd.), Mr. F. J. Gayer (Messrs. E. A. Roome and Co.), Mr. R. J. Holliday (Messrs. Holliday and Greenwood, Ltd.), Mr. F. M. May (Messrs. Holland and Hannen and Cubitts, Ltd.), Mr. F. G. Minter, Mr. W. J. Renshaw, Mr. Howell J. Williams, J.P., L.C.C. (Messrs. H. J. Williams, Ltd.), Mr. H. J. Wallis (Messrs. Chas. Wallis, Ltd.), Mr. Walter Wason (Messrs. F. and J. Wood), honorary auditor, Mr. E. S. Blake (Messrs. W. E. Blake, Ltd.). A hearty vote of thanks was given to Mr. G. Bird Godson for the able and assiduous manner in which he had discharged the duties of president during the past year. The Trade Disputes Act (1906) was considered, and the meeting desired unanimously to lodge a petition against the said Act in the House of Commons. Resolutions were given to secure the signatures of all the members of the association.

ROMAN REMAINS IN BRITAIN.—Professor F. J. Haverfield lectured on "The Discoveries of Roman Remains in Britain in 1912" before the British Academy on

LEGAL INTELLIGENCE.

LEGAL INTELLIGENCE.
BEAR HOUSE ARBITRATION IN HACKNEY. At the London Session on Friday before Mr. A. J. Lawrie and a special jury, Mann, Crossman and Parn in admitted claims compensation for the compulsory acquisition of property promissory by Messrs. Arms, Inclosure, Market Street, Hackney, in connection with the Market Street Improvement Bill, the London County Council acting on behalf of the Hackney Borough Council, Mr. Freeman K.C. and Mr. H. G. Morton represented the claimants. Mr. E. Morton K.C. and Mr. W. J. Davies appeared for the L.C.C. The jury awarded the claimants the sum of £3,900.

A MOSTER OF BUILDERS' FAILURE.—Thomas Martine, who, until recently, traded as a builder and a builders' merchant in Gilchrist, Fackley applied for his discharge from bankruptcy in the Manchester County Court on the 21st inst. Judge Receiver (Mr. J. Graham) reported that the value of his assets were estimated at £141 6s. 9d. The assets were estimated to produce £102 1s. 5d., had realised only £220 18s. 11d., as the committee of inspection were disposed to take proceedings for the recovery of the value of the same. There was a claim for £148 by owners of property in Merion which had been owned by the debtor. For these owners the debtor had erected 160 houses at an even price of £160 a house, and the sum of £25,600 had been expended with a profit of £175,000, which he had received. When disputes arose between the debtor and the firm for whom he built the houses, the debtor consulted architects who, while expressing their belief in the debtor's honesty, made good his claim up to £40 and no more. The architect insisted of items that were either overcharges or not chargeable at all, said that the sum of £160 per house was totally inadequate for the work done, and that it was difficult to understand how the debtor could have made such a large surplus of the kind to would result from entering into such agreements. Judge Mellor said he did not know that it was wise to encourage the speculative builder who can run up in this country a vast number of narrow margins, and the slightest bit of bad luck would ruin him and him down. The discharge would be granted, but subject to two years' suspension.

The town hall and municipal buildings at Odham are about to be extended for the corporation from plans by Messrs Taylor and Sonsters of Queen street, in that borough.

The Port of London Authority announce that, in addition to the construction of a large new dock, it has been decided to provide additional facilities by the construction of a riverside wharf at Tilbury.

Mr. M. J. Rendall, headmaster of Winchester College, formally laid on Saturday a memorial-stone of the first batch of eighty-two houses for the accommodation of the working classes of the city. They are being built by the Winchester Working Men's Housing Association, of which Mr. Rendall is chairman.

The Wandsworth Borough Council decided on Wednesday to contribute £3,000 towards acquiring twenty acres of land for public use at Wandsworth Common, provided that the land be bought by the London County Council, and the £3,000 is contributed by the Battersea Local Council and by subscription. The land is the property of the Royal Patriotic Com-

The Local Government Board have sanctioned the scheme proposed by Mr. Harry W. Taylor, A.M.I.E. Messrs. Taylor and Walling, Newcastle-upon-Tyne, and Birmingham, for the augmentation of the water supply of the Borough of Lambeth. By this scheme additional springs in the Faze Water Valley will be tapped, a large new reservoir built, and the distributing in the town completely altered. The cost is about £6,000, and the work will be commenced in June.

A member of the B. K. Durr, Farmers' Association and the B. K. and Owen Chamber of Agriculture held at Reading on Sunday, Mr. E. M. Mearns, President of the B. K. and Owen Chamber of Agriculture, announced that modification of the B. K. and Owen Chamber of Agriculture Bill to University College, Reading, in order to include the horticulture and in addition to a further grant of £10,000 a year recently offered by the B. K. and Owen Chamber of Agriculture, would be £22,500 a year and one-half of the capital cost of building with the object of establishing a building for a person at the college, on the basis of the grant of £2,500 a year was supplemented by £13,500 a year provided locally for the purpose.

Our Office Table.

The Manchester City Council on Wednesday approved the action of the Parks Committee in agreeing to the proposal to renovate and erect in Platt Fields the colonnade and wings (containing statuary) of the old town-hall in King street. The committee propose to make a request to the Lloyds-Banking Company, who have bought the old building and its site, to present to the corporation a framework comprising the colonnade and wings, and to erect the same. The Parks Committee took action on the understanding that the public should contribute about one-half the cost of the estimated cost. So far £98 11s. 6d. has been received.

The well-known Jacobean Globe Room in the Reindeer Inn at Banbury has been sold, as was mentioned in the House of Commons on Wednesday afternoon, for removal to America to a representative of a London and American firm. Mr. Percy Flock, acting for the vendors, declines to disclose the name of the purchaser. The Globe Room is panelled in old dark oak, and has a large mullioned window; but its chief attraction is the plastered ceiling. Some time ago a replica of it was made for the South Kensington Museum, and a ceiling of this similar design are to be found at Compton Wyndates. The owners of the inn are the Hook Norton Brewery Company, and it was stated, when first the sale was mentioned, that the purchaser had agreed to erect a facsimile of the room. The name is derived from a large globular chandelier which used to hang near the entrance, and it has been alleged that in this room a treaty was signed between Oliver Cromwell and the town. The sale of the room was threatened to create anger and the town council and some of the national societies took up the matter. Nothing, however, was done to secure the building for the town. We illustrated the 17th-century panelling in this room, and also the fireplaces, both from measured drawings by Mr. George Hanson, *R.I.B.A.*, in our issues of January 24 and February 14, 1908. A small sketch by P. Hubert Key, of the exterior of the Reindeer Inn, showing the mullioned window of this room, was published in the *Illustrated* of December 14, 1906; and a drawing of the entire courtyard of the inn, by William A. Pile, *R.I.B.A.*, was given in the *BUILDING NEWS* for August 7, 1885.

It was reported to the London County Council on Tuesday that Mr. R. Elliott Cooper, M.I.C.E., who was appointed by the Board of Trade to act as referee in connection with the purchase by the Council of the portion in London of the undertaking authorised by the London United Tramways Act, 1873-1908, has now issued his award. The Council will have to meet the expenditure, not exceeding £1,500, for the purpose of completing, revising and re-drawing, on 5ft. scale Ordnance Sheets, the owner-ship section of the ground plan of London. In April last year it was found more convenient, while the work of revising and re-drawing was progressing, to combine therewith the work of keeping up to date was then authorised. It was estimated at that time that it was not possible to frame any reliable estimate of the cost of the revision and re-drawing until experience had been obtained as to the extent of the area which it was possible to deal with, having regard to the reduction in the number of the staff engaged on the work which had recently been effected (viz., from sixteen to nine persons). The Committee reported that the award to the Council as to the cost of completing the revision and re-drawing of the plan. The value estimates, on the basis of the progress made with the work during the past year, that the work will take a further five years from April 1, 1912, to complete, and that the cost thereof will amount to £2,400, of which £125 will be expended during 1912-13, £125 during 1913-14, £125 during 1914-15 and 1914-15, £349 during 1915-16, and £180 during 1916-17. The Committee reported that it is desirable that the work shall be proceeded

The Improvements Committee of the Council reported the result of a conference of local authorities interested in the question of the proposed construction of a new western approach road to London, held at the offices of the Road Board on February 14. On that occasion Sir George Gibb, the chairman of the Board, presided, and the members of the Board as regards the nature and objects of the suggested new thoroughfare, which it is proposed should be formed to the north of Brentford High Street, passing south of Kew Bridge Station, Chiswick High Road, King-street, Hammersmith, and Hammersmith-road, and connecting up with the western end of the latter road, and the proposed road, as said, was proposed to be constructed with a width of 20 ft., and its total estimated cost from Hounslow to Cromwell-road was £1,750,000 of which amount at £1,000,000 represented the cost of the section which would be in London. The suggestion of the Road Board was that London should contribute £1,000,000 of the total expenditure. It was intended to avoid High-street, Brentford, and King-street, Hammersmith. As regarded High-street, Brentford, the estimated cost of widening was £347,000. It will be necessary for the several authorities to consider the matter in detail, but the Road Board desires that a decision shall be come to as to which of the several roads require discussion, it was finally understood that the Road Board would arrange for a further conference between a small number of representatives of the authorities affected, to examine the scheme in detail. In the meantime the Improvements Committee ask for the views of the representatives of the Middlesex County Council and the other local authorities concerned.

Mr. G. T. Middleton is arranging two pleasure tours for the spring and summer. The Easter tour is four days (Rome only) for four and a half guineas, or for eight days (Rome and Coudbec) for seven guineas. The party will leave London at 9.50 p.m. on Thursday, April 4, and proceed direct to Rome, staying there till the morning of Easter Tuesday, when train will be taken to Coudbec, and thence to the sea. The tour ends on Saturday, April 13. The total cost, second-class travel and good hotels, will be seven guineas, exclusive of meals while travelling, wine, etc., and portages, where necessary. The party will be under the direction of Mr. G. A. T. Middleton, A.R.I.B.A., of 19, Craven Street, Strand, London, W.C., to whom remittances must be sent by all who wish to join the party.

The summer tour is for four weeks (Greece only) for forty two guineas, or seven weeks (Greece and Turkey) for sixty guineas. The party will leave London at 9.50 p.m. on Thursday, June 27, and travel via Havre and Paris to Marseilles, whence boat will be taken to Patras, arriving there on Wednesday, July 3. A tour of Greece will be made during the following fortnight, visiting the following places, viz., Mycenae, Epidaurus, Athens and Eleusis. The boat will be re-engined on July 17, and Constantinople

reached on July 22. Five days will be spent there, and an excursion of five days' duration will be made to Broussa, in Asia Minor (the ancient capital of the Ottoman Empire), and to Nicæa. The return journey will be by boat, leaving Constantinople on August 3, and reaching Marseilles on August 12, which would enable London to be reached early on Wednesday, August 14. The party will be under the direction of Mr. G. A. T. Middleton, A.R.I.B.A., of 19, Craven-street, Strand, London, W.C., to whom remittances must be sent by all who intend to participate by Saturday, May 25.

By the use of mica, concrete work has been made in Chicago that bears a strong resemblance to granite. For surfacing concrete it has proved very effective. About five pounds of mica is sufficient to cover 100 square feet. The electric-light columns in Lincoln Park, Chicago, were treated in this way. Crushed red granite was used with the mica, so that the finished surface had the appearance of polished granite. The granite and mica surfacing material were applied to the inner surface of the square iron trough in which the columns were cast, and after their removal the posts were scrubbed with mica, which removed the sand from the surface of the mica particles, so that the surface showed a close resemblance to granite.

Herr Magens, a German engineer, has investigated the question of the influence of transportation on concrete, and has made comparative tests between concrete cubes made at the plant and then conveyed longer distances to the buildings, and between concrete cubes made directly at the building and then used there. In comparing test cubes, he allowed them to set 28.60 days and then tested them, finding that the concrete conveyed long distances showed in nearly all cases a considerable increase in compressive strength, varying between 56lb. to 198lb. to the square inch. A number of laboratories that were interested in this question made similar experiments and found the same results, the variations being from 7 to 33 per cent. in favour of the transported concrete. In general, transportation of concrete has no bad effect on the same, and in many cases has even a good effect. The results also point to the conclusion that inert concrete with sharp jagged edges, and as broken stone, gives better results than smooth, round material like pebbles and gravel. It is claimed that the shaking and the vibrations to which the concrete is subjected in conveying even adds to its density and closer structure. The building department at Ratzburg tested transported concrete for foundations, and found it to be 15 per cent. superior to the concrete made at the construction plant. This concrete has been transported a distance of 5,000ft. from the place of manufacture to the building where it was to be used.

The corporation of Accrington, which has applied to the Local Government Board for sanction to borrow £32,750 for electricity extensions, has decided to adopt gas-engines for driving the electric generators. It is intended to have a producer plant with ammonia recovery, the first installation will be capable of developing 2,000 H.P., but arrangements will be made for the subsequent addition of four similar units if required. At the Local Government Board inquiry just held it was stated that the initial plant would include two gas-engines, two high-tension generators, two exciters, and two water-cooling machines, the gas producer plant to cost £8,000, and the gas engine and generator £13,500. It is expected that there will be a saving, against steam, of £1,100 per annum for a 60 per cent. load factor on 2,000 H.P., allowing 12½ per cent. for interest, sinking fund, and repairs, and taking coal at 10s. per ton, whilst a further sum of £1,250 will be obtained from the recovery of by-products. The experiment of the Accrington Corporation, if successful, may be of importance to the gas-engine industry.

Circular No. 192, issued by the Forest Service Division of the United States De-

partment of Agriculture, treats of the prevention of sap stains in lumber. Freshly-cut sap-lumber, when piled in the open air to season will frequently become discoloured in a few days. The discolouration, which is more than a surface stain, and penetrates some distance into the wood, serves to depreciate the value of the lumber. Experiments by the U.S. Department of Agriculture, extending over a number of years, have been successful in providing a means of arresting this staining, and thus saving the immense loss by deterioration. The method that has been found to best serve the purpose is to treat it by dipping the boards in a 5 to 10 per cent. solution of sodium bicarbonate, and stocking in open piles to permit the free circulation of air. Other solutions were found to be equally efficacious in preventing staining, but owing to the fact that they discoloured the wood were discarded as not practical. The pamphlet goes into the subject in much detail, and can be had by addressing the Department of Agriculture, Washington, D.C.

Mr. W. G. Cole, F.S.I., has been appointed chief surveyor in the Land Division under the Small Landholders (Scotland) Act.

A colossal memorial statue in bronze of the late Mr. Hornby is to be erected in Blackburn, the sculptor being Mr. Albert Bruce-Joy.

Messrs. J. and J. Smith have been appointed architects to the Clones No. 2 Rural District Council for the erection of labourers' cottages.

Mr. Thomas Thomas, sub-sanitary inspector, Stirling, has been appointed borough architect, and sanitary inspector to the Dunfermline Council.

About £5,000 damage was caused by a fire which broke out on Tuesday at extensive timber stores in Grange-street, Limehouse, East, belonging to Messrs. Clark, Williams, and Co., ship joiners.

New and important discoveries are reported from Pompeii, including a species of drinking-burn containing many amphore, a dining-room with a fine fresco, and numerous electric-earring inscriptions.

Foundation-stones of a new Wesleyan Sunday-school were laid at Newbiggin on Saturday. The building is being constructed by Messrs. Walker, of Bedford, from the designs of Mr. Bell, architect, of Newcastle, and is to cost £950.

Mr. J. W. Lorden, of West Hill, Putney, and of the firm of W. H. Lorden and Sons, builders, Trinity-road, Epsom, Easing, was elected on Wednesday as prospective Unionist candidate for the representation in Parliament of North St. Pancras.

The death occurred at Truro on Thursday night in last week of Mr. William Clemens, of Trelow, formerly surveyor of the city. Mr. Clemens was appointed borough and sanitary inspector of Truro over half a century ago, and when he retired, some ten or twelve years since, he was appointed consulting surveyor to the corporation.

At the last meeting of the Lincashire Asylum Board, it was reported that Messrs. R. Noll and Sons, contractors, had abandoned the Whalley Asylum contract, and had filed their petition in bankruptcy. The committee were taking steps to re-let the contract. Afterwards, it was reported that Messrs. R. Noll and Sons, Whalley Asylum, the contract was let to Messrs. Parkinson, Limited, contractors, of Blackpool, at £239,500.

Mr. Frederick Rolley, of St. Helier-road, Blackpool, died on Wednesday week, aged seventy-eight years, of native of Wakefield. Mr. Rolley has for many years acted as a surveyor to the Todmorden Local Board. In 1883 he became surveyor to the Whitworth Local Board, and held the post for twenty years. After his premature end, he died at an estimated cost of £1,920. It was also agreed to continue the granite-sett paving in Lancelot-street and Ardendale up to Berkeley Green-road, at an estimated cost of £7,535, to carry out the widening and improvement of Sandy road, at a cost of £3,635, and to carry out works for the widening and improvement of Alum Rock-road and Treaford-lane, at an estimated cost of £6,386 and of £2,974 respectively.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Birmingham Architectural Association, 10.15, on "Some Valuations of the Stuart Period," by Messrs. Macartney, F.S.A.
Leicester and Leicestershire Society of Architects, "Metalwork," by Walter Gilbert, of the Bromsgrove Guild, 8 p.m.

MONDAY.—Architectural Association, "American Architecture," by C. A. Dumbarton, F.S.I., A.R.I.B.A., 7.30 p.m.
Surveyors' Institute, "Adjourned Discussion on 'The Simple Tax Movement,'" 8 p.m.
Royal Society of Arts, "The Loom and Spindle," by Luther Hooper, Cantor Lecture No. 3, 8 p.m.
Institute of Civil Engineers, "The Modern Home," by Percival M. Fraser, A.R.I.B.A., Caxton House, Westminster, 8 p.m.

TUESDAY.—Institution of Civil Engineers, Discussion on "Roller and Ball Bearings," and "The Testing of Anti-Friction Bearing Metals," Papers by "The Main Drainage of Glasgow," by Alexander Bethel McDonald, and "Golfed Midgley Trestle," by M. E. C. The Construction of the Glasgow Main-Drainage Works," by William Cecil Easton, B.Sc., I.C.E., and "Glasgow Main-Drainage Works," by W. H. M. Mechanical Equipment of the Western Works and of the Kinning Park Pumping-Station," by John Merton, M.I.C.E.

Nottingham Architectural Society, Exhibition and Critical of Designs for a Seaside Bungalow, 8 p.m.

WEDNESDAY.—Royal Society of Arts, "Greek Sculpture," by Prof. Ernest A. Gardner, M.A., 8 p.m.

THURSDAY.—Royal Society of Arts, "The Indian Census of 1901," by E. A. Galt, I.C.S., C.I.E., 4.30 p.m.
Institution of Civil Engineers, Discussion on "Interior Reports of Tests Committee," 8 p.m.

Manchester Society of Architects, "Buildings for Music," by H. H. Statham, F.R.I.B.A., 8 p.m.
FRIDAY (March 8).—Institution of Civil Engineers, Scientific Meeting, "The Heat Value of Fuels," by E. Gladwin, Stud.Land, C.E., 8 p.m.
Glasgow Architectural, Craftsman's Society, "Measuring and Valuing of Mason and Brick Work," by A. H. Purdie, 8 p.m.

SATURDAY (March 9).—Architectural Association, Visit to King's College Hospital, Denmark Hill, (W. A. Pitt, F.R.I.B.A., Architect).

Trade News.

WAGES MOVEMENTS

DALBEATTIE.—A new development in connection with the settmakers' dispute in Dalbeattie was notified on Saturday, acting on their decision of Thursday night, the men returned to work on Friday, after intimating to Messrs. D. H. and J. Newall and the masters of Barr Wood and Old Lands Quarries that they would not make 4in. by 5in. sets unless the increase of 3d. per ton was given. As a result, the quarry was temporarily closed down that night, and on Saturday not only the settmakers, but the drillers and others employed in the procuring of the granite were idle. Neither side seems willing to yield.

NANTLLE SLATE QUARRIES CLOSED.—In consequence of the shortage of coal several Nantlle slate quarries have already been obliged to close in so far as the employment of actual slate-getters and slate-makers is concerned. The quarries affected are South Dorothea, Olwyn, Alexandra, and Moelytrian. Some 600 or 700 men are thrown out of work. At Moelytrian the labourers will continue at work clearing a great fall which occurred on Wednesday.

TROUBLE THREATENING AMONG SCOTCH QUARRYMEN.—A grave outlook has arisen in the quarrying industry in the East and West of Scotland. The Settmakers' Union made an application to the men for the men for an advance of 1s. per ton on all classes of cubes, 6d. per ton on oblong sets, 3d. per foot on kerb and channel, and various advances on other special stones. It was stated that some of the size now in use have an average weight of 120 lbs. It is impossible to make a living wage under the present working conditions. The East and West of Scotland Masters' Association have intimated that after considering the high prices for the existing stone they have unanimously resolved, without yet proposing a reduction, that any application from the Union for any increase cannot be entertained at the present time. The masters have also intimated that they see no necessity for a conference on the subject.

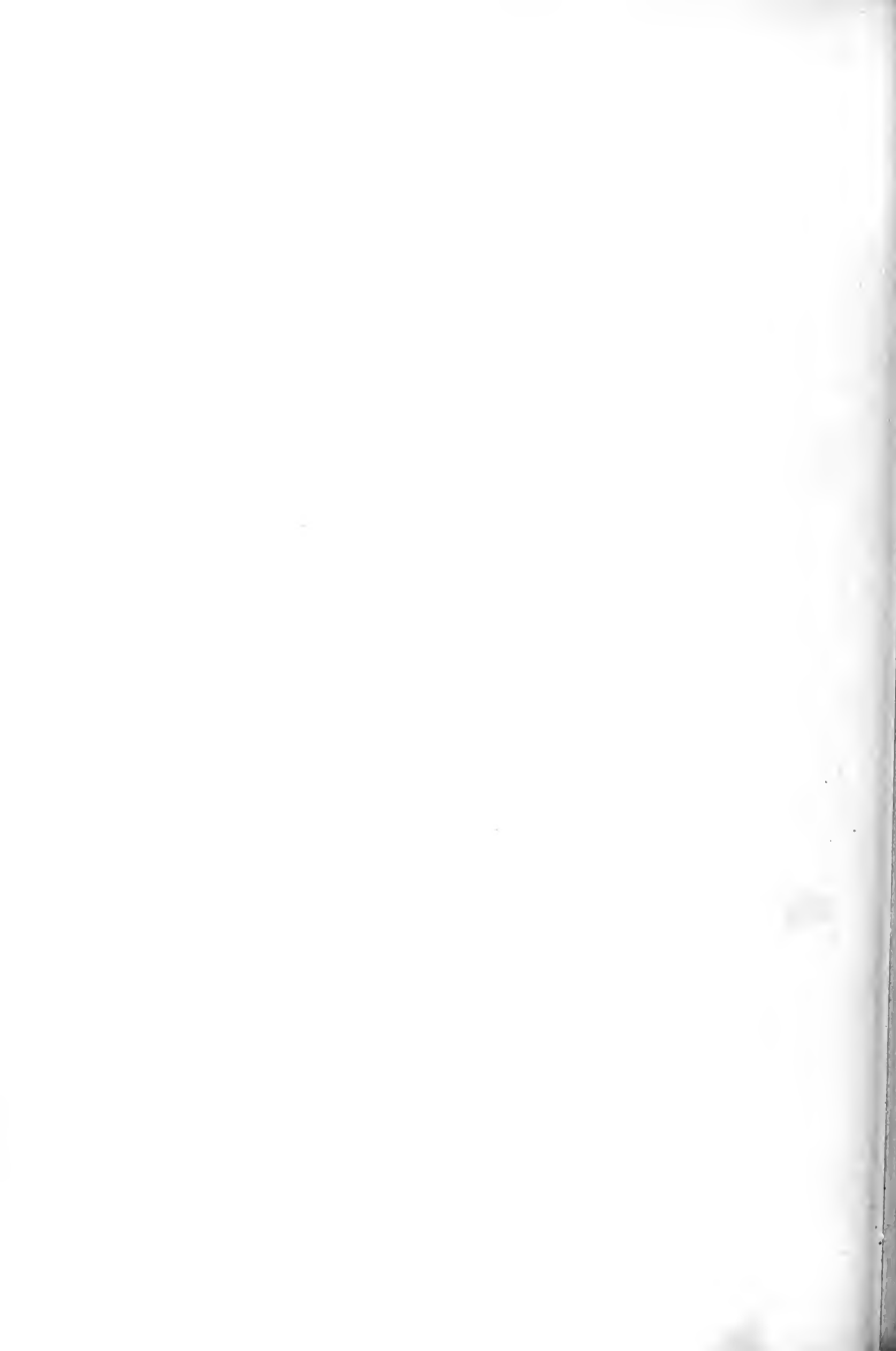
LATEST PRICES.

IRON.

Steel Joists, Belgian and German (ex stock), London Port	£5 12 6	13	£17 6
Steel Joists, English, London Port	£5 12 6	13	£17 6
Wrought-Iron Girder Plates	£5 12 6	13	£17 6
Steel Girder Plates	£5 12 6	13	£17 6
Flat Iron, good	£5 12 6	13	£17 6
Do, Lowdown, Flat, Round	£5 12 6	13	£17 6
Square	£5 12 6	13	£17 6
Do, Wash, round	£5 12 6	13	£17 6
Boiler Plates, 1/2 in.	£5 12 6	13	£17 6
South Staffs	£5 12 6	13	£17 6
Best Sheetpile	£5 12 6	13	£17 6
Andros 1/2 in. 100 ft. long	£5 12 6	13	£17 6
Builders' Hoop Iron, for bonding, &c., £18 1/2 to £20			
Builders' Hoop Iron, galvanised, £14 to £16 10s. per ton			
Galvanised Corrugated Sheet			

6ft. to 8ft. long, inclusive	Porton.	Per ton.
8ft. to 10ft. 100 ft. long	£13 0 0	£13 0 0
Best ditto	£13 0 0	£13 0 0
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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W. O.

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"THEY ALWAYS WIND UP WITH A ROW."

We don't say whereabouts the people lived whose character was described by one of their class, either in the last century or earlier ones, nor if they resided in America, Europe, in Asia, in Africa, or in Australia. We need not say that Australia was not their dwelling-place, because they were "a very peculiar people," perhaps "not always zealous for good works," and in any case specially zealous against bad ones, against which most, if not all, their wrath was chiefly directed. They had from early times a great deal of wrath in hand, and when we take up their story there was plenty of it left for future consumption, either in this world or in others. But they and their ways, their arts and all they did, sank them beneath most people's notice when their "great man" died, which he did not much after entering middle age, and not long after his sincerest friend had left these story scenes in the hope of meeting with a realm of unbroken repose. They and their leader both meant to do good—may, in their different ways, both did good; but what the outside world mainly said of them was the phrase which we have used to head this little memorial: "They always wind up with a row." There was no denying it, and had they all lived till now, so doubtless they would be ending still. Not that their leading spirit was rowdy by character. No one thought him so, or called him so, except when he had been desperately provoked, and by provocation particularly on what he would have thought theological grounds. As his life drew near its close, he seemed, as many men do, not to insist too strenuously on the little things which had seemed to him, as a beginner, very great ones. There seemed to be germs of evil everywhere, and his personal enemies were apparently stirring it up where it was hardest for him to let it go quite unnoticed.

There are many institutions, some worldly and some "other-worldly," which always "wind up with a row." But for the "other-worldly" ones the final row has to be a serious one—in another world. That, if it did come on as expected, has not yet been reported here below. But their first row here (as often happens with cantankerous people) was with an earnest architect. He had done some things, these people said, which he ought not to have done, and left undone some things which he ought to have done. Both the charges he utterly denied; and his accusers, though they repeated them, never could prove them. They inquired why he had

put the windows in rather small panes of rather stout glass. He had not to answer for this sin, because two or three trustees kindly took his part and declared the glass was none too thick to resist a hockey-ball, and the panes none too small. Old Cantankerous said he would have insured all the glass against breakage, had he been the architect, by making it all of what used to be the central part of every sheet of glass. This was a question of cost, and the committee here was against him. Then they quarrelled. I amongst them elves as to whether the front door ought not to have been painted dark green instead of brown, and whether every chimney ought not to have been finished with an anti-smoking white terracotta pot. Here the committee was against the architect, for he was of a-fashioned enough to prefer red ones (at half the price of white terracotta). Finally the committee acted up to its character and broke up in a row. Mr. Larks having, by means of a fragment of red chimney-pot, deposited Mr. Tonks's hat in a pool of mud, for which the several parties agreed, the architect was to blame. So on this occasion also they "wound up with a row."

So after a few more or less stormy meetings, a clerk of works was appointed (apparently with a scheme in his head to act out when a new architect, too, was proposed, and would have been appointed but that before the week was out he was under remand at the police-court for a matter in which the magistrate declined to allow bail. "We may see a row," said Old Cantankerous, "what sort of professionals these architects are"; but seeing this architect noting down his words, he ended in a tone which nobody could take down or swear to, and the first architect was reinstated for a while. Matters for the present then went on more smoothly. About this date the vital question of facing-bricks arose, and threatened to swallow up all others. Mr. Muggins—a committee-man—bought the bricks of a brickmaker near the Thames. They came up to London in one of Mr. Muggins's own barges, which, being in a leaky state from the first, sank before its voyage was half-over, and its cargo of bricks was immersed for two or three days in a mixture of salt water, sewage, and mud. The bricks were none the fatter for this unintentional experiment. Mr. Muggins was at that time too great a man to have his bricks returned upon him, though, after his ways had been a little exposed to daylight, people did not think them half so unimpeachable. However, the bricks were used for facing, with

all their defects, original as I acquired; but after six or eight months their faces began to scale off. By this time death and worse death had thinned the ranks of the trust as a little, and one result of this thinning was to make them, if not less quarrelsome, yet a little more afraid of quarrelling. Of course, they blamed the architect who, though honest, was not a "holy man" nor a "disciple," as all architects and builders should take care to be. The committee had twenty or thirty of the spoiled facing-bricks cut out and replaced by good ones; the rest remained, and some remain to this day. For more serious things than mud-sacked and salt-soaked bricks were by that time a question, and the great brick question had become a very small one.

A fortnight later the new clerk of works resigned. It then appeared that the salary promised him had been less than half of what he valued his own services at (which was three guineas weekly), and that the trustees had stipulated for half-yearly payments. He had dealt with the trustee class before, and as he did not feel sure how long his present specimens of this dignity would be free men, he lost little time in taking leave of them. More than one of them, in fact, was in their country's charge before six months were over; but not the very sharpest of them. These went abroad for the winter—perhaps to America, perhaps to Spain, or perhaps to places more difficult of access. Some of those who stayed here were in some cases believed to stay because they could find no for want of means. The architect remained. There were no charges against him worth notice, and if his father had not foolishly interfered with his education, or if it had been left free, he might have become a Churchman, which to this staunch Separatist would have been the Accursed Thing. He would have long before defied the cantankerous trustees, who wanted to ruin him. At last, however, he *did* defy them, and in writing, and got a sort of apology from the head man, and was employed at last to build the memorial hall to him after his death.

There are many committees and boards of trustees still left, who always "wind up with a row." What is the wisest course for a young architect to take, when he is in danger of falling into their hands? Some of them may be merely accidental groupings of ill-disposed people. Their members quarrel for quarrelling's sake. Perhaps some "Old Cantankerous" was one of the early members, and he took care to have many like-minded associates. He, or they, will pull your character to pieces,

for the rest of his life. What if he brings a definite charge against you before witnesses, and then he has witnesses taken down, or take them away myself. Two or three witnesses will tell for one, and best of all if they are in front of the architect's. Old Frank says will quiet down a little when he has no more evidence of making false and irresponsible charges against a professional man. Get good witnesses, too, if you can, of his saying things to the workmen, in a job to damage your character. For this is a serious thing, and Mr. C. is quite likely to have stumbled into it out of mere "carelessness of character." And if he has, other trustees are very likely to have joined him there, and more or less to let at your mercy. Remember that an architect's first duty is to drive the dogs away from his own heels. Unless you can do that, you can never superintend a building properly. Every man on the works will note that Mr. C. has made you afraid. But it is you that ought, in *one way*, to force Mr. C. to be in your service, and at your command; and not to let him manage this when you come, you probably never will manage it at all. If you have received a foolish training (as many boys have who do not take to it), you must get rid of it and let the damage it did to which you can expect to be thought worth your salt by any be also. Perhaps before you could walk or talk, some kind friend (by his minister's advice) used to follow his child about the house with a cane to beat all the wickedness out of him before it had even a chance of getting in. Learn to detect this unnatural way of being senselessly brought up, and, if you can, keep clear of it all that pertains to it, for ever after. People like this, even if they did you no worse harm, would incapacitate you from doing more than one side of a question all your life long; but an architect, to be worth the name, must see all sides of it. To some people, their personal horizon is the boundary of all things; but let it not be so with you.

There are hard times coming; hardest of all, retributively, for those who have made them hard for others. There is somebody to reckon with. A million men on strike are not a million times harder to argue with than one man on strike; but they may be many times more obstinate, which God forbid! It is small comfort to remember that they are crippling other trades besides their own crippling them, very likely. For this is a common thing, crippling them so that they will never rise in vigorous agencies that those trades will have to do what they can for their own members, and not for the rest of the world. If men, employers, and workers are paid in makers, must be paid in a way that they know how to use. Some men, after and breaking as far as they can be. Fairly paid for, and not a penny more, but all the very rich can take up the ends. If the strike comes to a halt, it cannot succeed for some time getting down even without a strike. Perhaps it will fall in the next two or three years, but it will work and hand-to-hand to appear in our grandsons' lives. Perhaps, instead of evils, people will then grow out of being specialists in the different trades, and if a given earth man and a bricklayer

localities. The public statutes, of course, apply to the whole kingdom; but these private Acts only affect the area controlled by the municipality in question. We thus get a body of private local legislation added to the general law of the land, and very often filling up gaps that were found in the public statutes, and giving new and needed legal powers to corporations and councils all over the country. This legislation is enacted, as it were, behind the scenes of Parliament. It all passes through a Special Committee of the House of Commons, and is, of course, controlled by the Legislature itself. But the very existence of these numerous private Acts is not very generally known, even to those who may come to be concerned in building or other business in the localities affected. Yet the new and extensive powers that are frequently given to provincial municipalities are of the utmost practical importance, and their working out in the chosen localities often affords an interesting experiment and an example that may well be followed later in a public statute. A very useful and interesting book upon this local legislation has just been published. It is a most careful compilation from thirty-two of the provincial private Acts passed in England and Wales during the three years 1909 to 1911. It consists of the collection of no fewer than some 2,300 sections from these statutes, arranged and classified under subject headings for convenient and ready reference. Mr. F. N. Keen, the author, is heartily to be congratulated, not only upon his idea, which we believe to be novel and original, but also upon the patience and perseverance which he has shown in carrying out his laborious work so thoroughly. The result is a book of great practical value for all who have to deal with the drafting of these private Bills, which are increasingly common amongst our active municipalities. But it is also a work which, by its excellent arrangement, with headings, full Table of Contents, and good index, must prove useful and suggestive to all architects, surveyors, and builders who may have to set about their business in localities hitherto unknown.

It is well pointed out in the introduction that the clauses passed in these private Acts for local experiment are frequently found to be so useful and valuable that they afterwards come to be adopted in our general public statutes. These private Acts are certainly full of new and vital ideas, all showing the progressive tendencies of our modern municipalities. It is, of course, impossible to note in these columns many of the multifarious subjects affected, and we can only take a few examples to illustrate our point and meaning. In Part I., which deals with streets, buildings, sewers, etc., under numerous sub-headings, we have many instances of the watchful care of those who promoted the various private Acts from which sections are quoted. Thus we find some local authorities have obtained in this way Parliamentary powers to define the future line of existing streets. For example, at Mountain Ash, the municipality, which seems to have taken a leading and an enlightened course in these matters, is able to order the alteration of the line of frontage even in old and well-established streets or roads. It can also enforce this new line by the compulsory purchase of any property that stands in its way, which can generally only be done

under the ordinary law, for the benefit of a public improvement. Other municipalities about the country have in their private Acts similar useful powers. But in most places they do not yet exist, and thus we sometimes see that an obstinate owner or leaseholder, by maintaining his position, can, and does, hinder the full completion of a road-making upon new lines, to the annoyance of others, and even to the danger of those using the highway. It is certainly a question whether it would not be better to confer these full powers of compulsory purchase upon all municipalities, instead of leaving the matter in its present partial and experimental state. The general improvement of old country lanes, that have become busy roads, is to the public advantage, and it should not be hindered by the powerlessness of the local authorities to compel property-owners to sell at prices fixed after arbitration.

There is, nowadays, under our Town-Planning Act and other statutes, little difficulty in dealing with newly-created neighbourhoods; but in old localities questions of road widening and altered building lines raise practical problems, not always easy of solution. Our modern methods of rapid locomotion by trams, whether with or without rails, by motor-buses, and by motors generally, require more spacious and better-made roads. The needed changes are being gradually made all over the country, but in places they are sure to be obstructed from causes which are removable only by legislation. In the remedies given to many of our most progressive localities by the Private Acts they have obtained, we may find working models for general imitation, especially in their drastic powers for dealing with awkward property owners, and the survival of narrow lanes in portions of new and widened roads. We can also trace, in reference to buildings, some practical points well worth noting and extending. Thus, for instance, among such examples, we may mention that the municipality of St. Helens has, in its Private Act of last year, a clause compelling the owners of all dwelling-houses to be built in future, to provide "sufficient and suitable food storage accommodation" in the same, under penalties. Anyone who has seen the dark holes and airless cupboards called larders or pantries, which disgrace our domestic architecture in many places, and these not only in the poorer parts, will acknowledge that it is quite time this provision was made general and compulsory. Sanitation is by some confined to sewage and drains, and space; but the health of the people requires that, besides sufficient light and air, there should also be some means of storing their necessary food in a decent and wholesome manner. Another, and a smaller point, but one showing the watchfulness of some local authorities may be taken from the Mountain Ash Private Act of 1909, since largely followed by other municipalities, which declares that every contractor or builder engaged upon the construction and alteration of any building shall provide satisfactory water-closets and urinals for the workers until the job is completed. So we might go on through a long list of similar and suggestive items of legislation which are to be found in these private statutes.

This volume, indeed, dry, dull, and full of detail as it will come to many readers as a surprising revelation of the amazing activity and vigour of our municipalities, especially in some parts of the country. From the great growth that has taken place in this local legislation during the past three years, it would seem that they are now living with each other, and that many have followed the lead of those enterprising towns which seem to have started

PRIVATE LOCAL LEGISLATION.

Beside the large number of public statutes dealing with local government, public health, streets, buildings, and endless other municipal matters, there are also many private Acts which have been passed by Parliament upon the promotion and at the expense of numerous separate

Local Legislation, 1909 to 1911. Compiled and arranged by F. N. KEEN, LL.B., Barrister-at-Law, of the Parliamentary Law. With an Introduction by Sir GEORGE S. NICHOLLS, Bart., M.P., Walter de la Mare and Co., Ltd., 30, Craven Street, W.C. Price 3s. net.

the more modern movement. All who are concerned with land and building must agree that this is for the good of the public as well as of those who are engaged in the professions and the trades affected. Order and cleanliness, and artistic symmetry in our public roads and private dwellings have been ardently longed for by social reformers and clear thinkers of all kinds. In this overcrowded country the health and happiness of the community require and demand these things. Reading over these well-arranged sections from our Local Acts of Parliament, we can see what has been, and is being, done in this direction, and we have a good guarantee for their future expansion. The legal clauses here set out in formal language, are, of course, only the expression of those original and fertile ideas that have come to some town clerk or local architect, engineer, or surveyor. But they have not been wasted. They have been brought into daily life and action through the modern municipalities acting in and by, the power of Parliament. This local legislation so carried out is a striking result of our national common sense, and of our ability to adapt old machinery to novel requirements. It has all been, and is still being, done quietly, in a business-like way, without any need for public discussion, or the waste of Parliamentary time. Some day, perhaps, most of the best things not already used, to be found in these numerous Private Acts, will be codified and centralised in one public statute for the benefit of the whole community. This local legislation may be taken as a seed-bed, or a nursery, of new and practical ideas affecting the daily life and health and progress of the people. When these ideas have been tried and tested by actual use and experiment, they can safely be applied to the general civic policy of the nation.

Undoubtedly our municipal enthusiasts have to be watched over and often restrained. But this is done very effectively by the special local legislation committee, which is now a strong body of fifteen members, many of whom have had practical experience of the work from sitting in previous sessions, and so preserve a continuity of policy in passing the Bills promoted. Of course, there are many schemes and suggestions that do not get through after the careful sifting and scrutiny they undergo. Equally of course, the powers of the general law are remembered, and are not allowed to be exceeded unless good cause is shown. But the men who have been responsible for the three years' local legislation, so capably dealt with in this useful book, have reason for pride in their output, and for public recognition of their fruitful labours. Upon a broad view of these private Acts, we see that they go further than does the body of our public statutes in favour of the community as compared with the individual. This is, therefore, to be taken as the trend of modern legislation. It is a peaceful progress—a silent revolution in our old ideas of the rights of property and of personal freedom. Municipalities are, in effect, making their own laws—through the most regular, constitutional channels, indeed, but making them, all the same. All this is done for the good of the collective community, and at the cost of the ratepayers. But it is worth doing and paying for, and is being well done. It may not be easy for some people to get enthusiastic about work of this kind. Yet if we look below the surface of words and forms, we can see the forces of order and good government operating actively and successfully in favour of the health, civilisation, comfort, and convenience of the whole country. It is for architects, surveyors, engineers,

contractors, and builders generally to co-operate with these municipal powers in giving their best to the work they are called upon to do. This will be for the public good, as well as to their own personal profit and advantage. Now that the turn of the tide of ill-fortune seems at hand, it may be hoped that we shall in this way soon witness brighter times for all who have to deal with land or building throughout the country.

THE R.I.B.A. PRIZES AND STUDENT-SHIPS, 1913.

The subjects for the prizes and studentships in the gift of the Royal Institute of British Architects for the year 1913 are published in a pamphlet just issued.

The Essay Medal and Twenty-five Guineas, open to British subjects under the age of forty years, will be awarded for the best essay on a subject of architectural interest which may be chosen by each competitor for himself. Competitors will be expected to make a useful contribution to knowledge by accurate research, so that the essays can be accepted as authoritative statements on the subjects dealt with. Candidates in the final examination competing for this prize may submit their essays in the theses required under (F) of the revised syllabus. It has now been the practice to set a special subject every year for the essay prize; but the change indicated above has been decided upon on the recommendation of the Board of Architectural Education, who in a report to the Council expressed the opinion that able and permanently useful original work would probably be forthcoming if candidates were left to choose their own subjects.

The Measured Drawings Medal and Ten Guineas, open to British subjects under the age of thirty years, will be awarded for the best measured drawings made by the competitor of any important building—Classical or Mediaeval—in the United Kingdom or abroad. Candidates may apply to the Records Committee of the Royal Institute for guidance and direction as to subjects.

The Smead Medal and £100, open to British subjects under the age of thirty years, will be awarded for the best design for a terminal railway station, with the main frontage facing an open square or place, and side frontages to wide roadways.

The Pugin Studentship (Silver Medal and £40), open to members of the profession (of all countries) between the ages of eighteen and twenty-five years, and intended for the study of the Mediaeval architecture of Great Britain and Ireland, will be awarded to the competitor who submits the best selection of drawings and testimonials.

The Godwin Bursary (supplemented by the Wimperley bequest, a Silver Medal and £35, intended for the study of modern architecture abroad, and open to British subjects without limitation as to age, will be awarded for the best selection of practical working drawings (his own work), or other evidence of special practical knowledge, and testimonials.

The Owen Jones Studentship (Certificate and £100), founded for the encouragement of the study of architecture, more particularly in respect to ornament and coloured decoration, and open to members of the profession under the age of thirty-five years. Candidates must submit testimonials, with drawings, some of which must be from existing buildings and from other examples, exhibiting their acquaintance with colour decoration and with the leading subjects treated of in Owen Jones's "Grammar of Ornament."

The Tate Prize (Certificate and £30), open to British subjects under the age of thirty years, will be awarded for the best design, according to the methods of Palladio, Vignola, Wren, or Chambers, for the facade of a Royal palace in a city, and approached by a wide avenue.

The Henry Saxon Snell Prize (£60), open to any member of the architectural profession, who may associate with himself any member of the medical profession. The

prize, which was founded for the encouragement of the study of the improved design and construction of hospitals, convalescent homes, and asylums for the aged and infirm poor, will be awarded for the best design for a sanatorium for consumptives, to provide accommodation for 120 men.

The Grissell Prize (Gold Medal and Ten Guineas), for the encouragement of the study of construction, and open to British subjects who have not been in practice more than ten years, will be awarded for the best design for a railing, slender, constructed of steel, with the sides and roof partially glazed.

The Arthur Cress Prize (Forty Guineas), founded for the promotion of the study of architecture, more especially in relation to the application of concrete to vaulting, stability of edifices, and design, and open to British subjects who have passed the Institute Final Examination. Candidates must submit a selection of their testimonials of study for the Final Examination, and drawings of subjects of Classical or Renaissance and of Modern architecture.

The Ashpitel Prize (Books value £10), awarded to the student who distinguishes himself most highly in the Final Examination of the current year.

"TESTING OF MATERIALS" USED IN REINFORCED CONCRETE.

By MR. A. ALBAN H. SCOTT, M.R.S.M. Inst. (Member of Council S.A.).

(Continued from p. 359.)

(26) The ultimate resistance of any material is its strength at its weakest point, and the actual area of the concrete is the gross area minus the area of voids at any section; it is therefore necessary that the ascertained percentage of voids in the aggregate and sand should be entirely filled up with cement, with an additional allowance for completely surrounding each particle. The usual rough-and-ready means of determining the exact proportion of the cement to the sand and aggregate has resulted in many cases of disaster.

(27) The specific gravity of sand and cement should be taken in order to compare with the weight of the test specimens, as such weight is materially affected by the original weight of the aggregate and sand. There are at least two methods of ascertaining the amount of voids; one is by ascertaining the specific gravity of the material used, and, secondly, by allowing the aggregate and sand to absorb moisture, then to dry the surfaces without extracting moisture from the material, and then in the test tubes to add water until such time as the level of the aggregate and the water is at the same point.

(28) Water—The water usually obtained from own supplies can be taken as of proper quality for use in concrete work; but in country districts water obtained from wells and reservoirs often contains foreign matter, such as peat and other vegetables, and it has been found that by using peaty water it retards the setting of the cement; in one case the concrete did not set for a period of three weeks, at which stage the concrete was still very soft, and was taken up.

(29) Steel.—In no part of the steel for reinforced concrete should welds be allowed. Welds can be made in various ways, but it is impossible to test each weld, and in these points it is not an exaggeration to say that not one weld in 500 would be of equal strength to the rest of the bar, and it has been ascertained, with most disastrous results, that the strength at the joint of the weld goes so low as 30 per cent. of the bar adjoining. This is caused not so much by the lack of amalgamation of the material itself, but generally by the fact that large voids are left right in the course of the joint.

(30) Surface Cracks.—In steel are often found in the ordinary common bars, being indicated by most minute cracks, generally starting in the shape of a "V." Although such defects are in themselves, perhaps,

RESULTS OF EXPERIMENTS TO ASCERTAIN THE RESISTANCE TO THRUSTING STRESS OF

Test No.	Description	Weight.	Dimensions.	Base Area	Crushed.		
					Stress	Per sq. in.	Per sq. ft.
S.S.	Age 28 days	lb.	inches.	sq. in.	lb.	lb.	tons
2967	Mixed fairly wet as in practice	17.30	6.00 6.00 x 8.00	36.00	31,280	524	62.5
2966		17.67	6.02 6.00 x 8.00	36.00	36,080	1,002	61.4
2965		18.31	6.00 6.00 x 8.00	36.00	33,340	1,065	66.0
2968		18.16	6.01 6.00 x 8.00	36.00	37,240	1,049	66.7
2981	Sprinkled with water every other day for first 7 weeks.	18.00	6.00 6.00 x 8.00	36.00	32,750	1,187	76.3
2980		18.31	6.01 6.00 x 8.00	36.00	37,920	1,057	71.9
2982		18.43	6.01 6.00 x 8.00	36.00	41,000	1,151	74.1
2986		18.32	6.02 6.00 x 8.00	36.00	38,880	1,089	69.5
2990	Not sprinkled	18.01	6.00 6.00 x 8.00	36.00	67,700	1,881	121.0
2991		18.02	6.00 6.00 x 8.00	36.00	69,340	1,983	127.7
2992		18.31	6.01 6.00 x 8.00	36.00	74,700	2,076	140.5
2994		18.31	6.06 6.00 x 8.00	36.00	60,700	1,686	108.4
2999	Mixed fairly dry, not rammed	18.22	6.05 6.00 x 8.00	36.00	57,300	1,792	102.4
3000		18.26	6.01 6.00 x 8.00	36.00	64,010	1,735	115.1
3001		18.10	6.00 6.00 x 8.00	36.00	38,880	1,083	69.5
3002		18.17	6.02 6.01 x 8.00	36.00	39,400	1,053	68.3
3121	Not sprinkled	18.36	6.01 6.00 x 8.00	36.00	69,000	1,889	121.5
3122		18.28	6.01 6.00 x 8.00	36.00	75,000	2,083	139.8
3123		18.28	6.03 6.01 x 8.00	36.00	73,630	2,015	131.5
3124		18.37	6.03 6.01 x 8.00	36.00	74,010	2,046	132.2
3129	Sprinkled	18.30	6.01 6.00 x 8.00	36.00	71,360	1,985	127.6
3130		18.06	6.01 6.00 x 8.00	36.00	71,270	2,063	127.7
3131		18.36	6.01 6.00 x 8.00	36.00	71,860	2,049	128.8
3132		18.41	6.02 6.01 x 8.00	36.00	72,060	2,002	128.7
3107	Not sprinkled	18.11	6.01 6.00 x 8.00	36.00	80,280	2,228	144.9
3108		18.00	6.02 6.01 x 8.00	36.00	83,100	2,208	148.4
3109		17.30	6.01 6.00 x 8.00	36.00	83,280	2,313	155.7
3110		18.05	6.01 6.01 x 8.00	36.00	73,470	2,017	133.2
3003	Mixed fairly dry, not rammed	17.72	6.02 6.00 x 8.00	36.00	63,250	1,777	113.0
3004		18.28	6.00 6.00 x 8.00	36.00	83,400	2,315	156.3
3005		18.10	6.00 6.00 x 8.00	36.00	85,020	2,362	160.8
3006		17.72	6.00 6.00 x 8.00	36.00	67,700	1,875	124.0

Proportions: 1:1:1 Thames ballast (passing 4 in. and retained on 2 in. mesh), 2 ft. sand. For tensile strength, A. & C. of cement used for above, see Report, Nov. 8, 1909. Water added to above quantities in Groups A, B, C, D.

SIXTY-FOUR CONCRETE CUBES, MADE UNDER VARIOUS CONDITIONS AT THESE WORKS.

Test No.	Description	Weight	Dimensions.	Base Area	Crushed.		
					Stress	Per sq. in.	Per sq. ft.
S.S.	Age 100 days	lb.	inches.	sq. in.	lb.	lb.	tons
2967	Not sprinkled	17.76	6.01 6.00 x 8.01	36.00	64,920	1,778	117.6
2968		17.77	6.00 6.00 x 8.01	36.00	63,920	1,776	116.7
2969		17.76	6.01 6.00 x 8.01	36.00	64,720	1,775	117.1
2982		17.95	6.00 6.00 x 8.01	36.00	64,240	1,783	117.8
2987	Mixed fairly wet as in practice	17.57	6.03 6.01 x 8.03	36.00	38,490	1,616	103.9
2988		17.61	6.00 6.00 x 8.00	36.00	62,940	1,748	112.4
2989		17.82	6.03 6.01 x 8.00	36.00	65,120	1,800	116.3
2990		17.87	6.01 6.00 x 8.00	36.00	71,410	1,984	127.6
2991	Not sprinkled	18.13	6.00 6.00 x 6.00	36.00	87,410	2,428	156.1
2992		18.08	6.00 6.00 x 8.01	36.00	85,890	2,388	154.6
2993		18.11	6.01 6.00 x 8.00	36.00	89,880	2,497	160.6
2998		18.12	6.01 6.00 x 6.01	36.00	89,180	2,449	157.5
3011	Mixed fairly dry, not rammed	18.18	6.01 6.00 x 8.00	36.00	90,400	2,511	161.5
3012		18.30	6.01 6.00 x 8.00	36.00	96,950	2,645	173.3
3013		18.28	6.01 6.00 x 8.00	36.00	95,840	2,667	167.7
3014		18.25	6.01 6.00 x 8.00	36.00	94,880	2,522	163.2
3015	Not sprinkled	18.31	6.00 6.00 x 8.01	36.00	101,500	2,792	177.5
3016		18.45	6.00 6.00 x 8.00	36.00	107,000	2,919	187.7
3017		18.32	6.00 6.00 x 8.00	36.00	105,970	2,909	186.9
3018		18.25	6.01 6.01 x 8.00	36.00	107,200	2,978	190.7
3019	Mixed fairly dry, not rammed	18.46	6.00 6.00 x 8.01	36.00	117,300	3,278	209.5
3020		18.30	6.01 6.00 x 8.01	36.00	109,200	3,033	191.9
3021		18.36	6.01 6.00 x 8.01	36.00	124,010	3,456	231.1
3022		18.36	6.00 6.00 x 8.00	36.00	104,000	2,889	185.8
3023	Not sprinkled	18.28	6.01 6.01 x 8.00	36.00	128,001	3,556	228.7
3024		18.00	6.00 6.00 x 8.00	36.00	119,020	3,306	212.6
3025		18.00	6.00 6.01 x 8.00	36.00	121,620	3,378	217.2
3026		17.69	6.01 6.00 x 8.00	36.00	136,230	3,804	251.2
3027	Mixed fairly dry, not rammed	17.82	6.00 6.00 x 8.00	36.00	110,840	3,083	198.3
3028		17.93	6.00 6.00 x 8.00	36.00	110,940	3,012	198.3
3029		17.78	6.01 6.01 x 8.00	36.00	136,230	3,794	251.3
3030		18.10	6.00 6.00 x 8.01	36.00	131,500	3,736	240.3

Proportions: 1:1:1 Thames ballast (passing 4 in. and retained on 2 in. mesh), 2 ft. sand, 75 per cent. passing 4 in. mesh, 1 ft. "F" Ferro

Percentage of Voids.		Percentage of Voids.	
Test No.	Percentage of Voids.	Test No.	Percentage of Voids.
2967	17.76	2987	17.57
2968	17.77	2988	17.61
2969	17.76	2989	17.82
2982	17.95	2990	17.87
2987	17.57	2991	18.13
2988	17.61	2992	18.08
2989	17.82	2993	18.11
2990	17.87	2998	18.12
2991	18.13	3011	18.18
2992	18.08	3012	18.30
2993	18.11	3013	18.28
2998	18.12	3014	18.25
2999	18.46	3015	18.31
3000	18.28	3016	18.45
3001	18.30	3017	18.32
3002	18.25	3018	18.25
3003	18.46	3019	18.46
3004	18.30	3020	18.30
3005	18.36	3021	18.36
3006	18.36	3022	18.36
3007	18.28	3023	18.28
3008	18.00	3024	18.00
3009	18.00	3025	18.00
3010	17.69	3026	17.69
3011	17.82	3027	17.82
3012	17.93	3028	17.93
3013	17.78	3029	17.78
3014	18.10	3030	18.10

Proportions: 1:1:1 Thames ballast (passing 4 in. and retained on 2 in. mesh), 2 ft. sand, 75 per cent. passing 4 in. mesh, 1 ft. "F" Ferro

highest moment, yet immediately the moment is changed to any stress they can produce a most alarming manner. It has been found that the diameters of cubes vary from that specified, resulting in a loss of a loss of 12 per cent. in the area of the cubes, and in the final measurements are taken on a basis of the correct diameter, such excess of diameter will be the solution of the difference found between the surveyor's measurements

upon every piece of steel that is brought on to the site.

b. The elastic limit is also of the utmost importance, as although steel might have a high ultimate resistance, the elastic limit might be so low that, in case an accidental load is placed on the work, a sudden collapse might take place; whereas, by use of material with a proper elastic limit, proper warning would be given before its sudden failure.

c. It is essential that steel should be of such properties as will enable it to take a gradual and uniform extension, thus indicating a uniformity of quality; and the contraction of area at fracture should not be less than 45 per cent., which will confirm the properties of equal extension.

d. A silky fracture indicates a uniformity, and a good mild steel so far as the metal, as metal, is concerned. Granular or fibrous grain indicates brittleness and unequal quality.

(33) Concrete.—I think it is safe to say that of all materials used in the building trade, concrete is liable to, and does, vary more than any other material. Even if every care has been taken to see that each unit is of its proper quality and strength, yet we have in the finished concrete to reckon with a very large amount of human element. One gang of men may produce concrete of the best quality, and another gang on the same work, with similar materials, may give very different results. This depends a very great deal upon the head ganger, and upon the foreman who selects such ganger. With a good machine mixer, the possibility of human errors is considerably decreased, but, at the same time, an improperly designed mixer is, in my opinion, more dangerous than mixing the concrete by hand.

(34) The Table 3 shows that concrete which has not setting somewhat retarded by sprinkling with water gives generally higher results than concrete which was allowed to dry under normal conditions. The question arises here, however, as to the consistency of concrete, not only from the point of view of the strength of the concrete itself, but rather as to what consistency will give the best results in actual practice from the point of view of contact with the metal, resistance to crushing, and shear, and although it is essential that no little water as possible should only be used to prevent airholes occurring after the water has been evaporated, I would feel inclined to use a concrete slightly wetter than the average practice in France, but certainly much drier than the general present use in England.

(35) Comparatively wet concrete will not allow of it being rammed or "tamped"; whereas to get a drier concrete into its correct position, tamping and gentle ramming is essential. As the whole of the strength of reinforced concrete depends upon proper adhesion of the concrete to the steel, it is an essential factor that the concrete is gently rammed at every point.

(36) The architect has therefore a much better chance of making sure that the concrete is properly placed in position and properly worked between the reinforcing metal, and the greatest trouble has been found to be with contractors wishing to make the concrete wetter than is desirable, owing to the fact that a wet concrete is more easily placed in position, and with much less labour than a dry concrete.

(37) The influence of the percentage of water used is the result of a series of tests which Mr. Kirkaldy carried out for the purpose of arriving at some definite conclusion as to the value of the relative point of the efficiency of wet and dry concrete.

(38) The usual period of the first test on concrete has, until recently, been at 28 days; but with important structures, to obtain tests at 28 days after the concrete is made is not going to be of very much use for early correction when the work is being rapidly pushed forward; therefore a seven-day test is essential, so as to be able to immediately detect any error in any of the materials.

(39) At the present moment there are few tests at seven days, so that for the present the reasonable resistance of concrete at this

period has not been definitely ascertained. Such tests in connection with the 28 days' tests will also give most useful information with regard to when it is safe to strike the centering, and when one considers the failures that have taken place owing to the centering having been removed too quickly, a seven days' test will undoubtedly become a recognised factor very shortly.

(40) The 36 days' and 90 days' tests are desirable, as they show what is actually taking place in the work with regard to the increase or decrease in the strength of the structure.

(41) The concrete up to about six months of age increases in strength fairly rapidly; but it is curious that from about six to nine months the increasing resistance of thrusting stress is very trifling; but after nine months the strength of the concrete again continues to increase at a more rapid rate, although not so rapidly as during the first six months.

(42) For the purpose of research work, and where the importance of a job will allow it, it is most desirable that specimen pieces should be tested in sufficient number, so that each series of specimens are tested up to at least ten years of age. A number of specimens should always be kept, so that if anything should ever happen to any structure or part of same, one is in a position to test the concrete, and the steel, of course, could be tested from samples obtained from the actual work.

(43) By the kind permission of Mr. Kirkaldy, I am able to give you the actual detailed results of experiments to ascertain the resistance of the thrusting stress on 64 cubes made under various conditions at 7 days.

(44) You will see that there are many things to be learnt from this excellent series of tests. At 28 days the highest result obtained was an average of 2,225lb. per square inch, and at 90 days the highest result was 3,554lb. These two results can be taken as being the greatest amount of resistance that can be obtained from concrete made under the most favourable conditions, and it should be compared with the lowest results obtained, which are 1,020lb. per square inch in 28 days, and 1,787lb. per square inch in 90 days, with varying results between these two extremes, and the question arises as to which is the most probable result that would be obtained from work in actual practice in determining this; it might, perhaps, be desirable at the same time to inspect the diagrams showing the results of experiments on concrete taken from the actual mixing platform on several works.

TABLE 4.

Result of Grading of Sand.

Sand.	Retained on 30 x 30	Passed 30 x 30	Passed 50 x 50	Total.
p.e.	p.e.	p.e.		
Sample 1.....	29.0	13.5	55.5	100.0
Sample 2.....	48.2	14.0	37.8	100.0

TABLE 5.

Test on Cement Used for Tensile tests. Brickets 1lb. x 1in.

Neat cement.		3 parts standard sand to 1 part cement.	
lb.	per sq. in.	lb.	per sq. in.
372	106	196	106
372	106	196	106
370	106	196	106
351	102	192	102
336	101	191	101
Mean of 5 tests 552.2lb. per sq. in.		Mean 204.6lb.	
Age 7 days.			

(45) We have heard that in certain concrete works 2,000lb. per square inch is invariably obtained on concrete 28 days old; but I hesitate to accept this figure, and such high results are possibly accounted for by the fact that the tests might be made on a machine such as one which is used in conjunction with a mercury column, whereby a high result can be obtained if the load is put on suddenly. In all tests a sudden load will give a much higher result than a gradually increasing load.

(46) Effect of "Flour" in Concrete.—The question has often arisen as to the effect of very fine sand, or so-called sand, on concrete, and we have had two series of tests carried out on materials of this nature.

(47) Table 4 shows the result of the grading of sand. Table 5 shows the test on cement used for the specimen pieces.

Table 6 shows the result of tests to ascertain the resistance of thrusting stress on standard sand and cement.

Table 7 shows the result of tests on the brickets containing the very fine materials.

Residue upon sieve 50 : 30, 0.0; upon sieve 75 : 76, 0.4; upon sieve 100 : 180, 10.5 per cent. Time of initial set (25 per cent. water), 3 hours; set hard, 9½ hours. Paste remained sound in air and cold water, also in water kept at a temperature of 115 120deg. F., for 48 hours.

Le Chatelier test for soundness: Cement aerated for 24 hours, expansion 3 mm.; after 7 days' aeration, expansion 1mm.; weight of cement per cubic foot.

1.	86.56
2.	88.28
3.	83.11
4.	85.80
5.	94.10
6.	95.35

TABLE 6.

Result of experiments to ascertain the resistance to thrusting stress of cubes of standard sand and cement.

Description.	Dimensions.	Base Area.	Crushed.	
			Total.	Per sq. in.
From Bin No. 22	in	sq. in.	lb.	lb.
	1.00 3.00 x 3.01	9.03	41.40	4.59
	3.00 3.00 x 3.00	9.00	43.80	4.81
Neat cement	3.00 3.00 x 3.00	9.00	42.20	4.69
Age 7 days	3.00 3.33 x 3.01	9.03	41.20	4.57
	3.00 3.33 x 3.02	9.06	41.00	4.45
	Mean.....		9.02	40.86	4.643
3 parts standard sand to 1 part cement by weight	3.00 3.00 x 3.00	9.00	40.40	4.38
	3.00 3.00 x 3.03	9.00	41.80	4.51
	3.00 3.00 x 3.01	9.03	42.00	4.55
Age 7 days	3.00 2.66 x 3.00	9.03	40.40	4.36
	3.00 3.00 x 3.00	9.03	41.00	4.26
	Mean.....		9.02	41.08	4.220

Not sufficient quantity of material of "sample sands." Nos. 1 and 2 to make comparative experiments to ascertain the resistance to thrusting stress.

TABLE 7.

Test on brickets cement and sand samples 1 and 2 for tensile strength.		Brickets 1lb. x 1in.	
Sand sample No. 1.		Sand sample No. 2.	
lb. per sq. in.		lb. per sq. in.	
112		178	
108		150	
102		170	
103		191	
101		168	
Mean 103		Mean 177.4	
Proportions: 3 sand 1 cement.		Age: 7 days	

TABLE 8.

Results of experiments to ascertain the tensile strength, &c., of cement and rock dust, and cement and sand. Twenty specimens moulded here, immersed in water, and tested at 7 and 28 days. Brickets, sectional area 1sq. in.

Cement and Rock Dust.		Cement and Sand.	
(3 parts rock dust to 1 part cement, by weight.)		(3 parts rock dust to 1 part cement, by weight.)	
Age 7 days.		Age 28 days.	
Test No.	lb.	Test No.	lb.
Q.Q.	64	Q.Q.	106
4,280	64	4,201	135
4,588	56	4,500	100
4,287	50	4,503	100
4,284	58	4,569	97
4,585	48	4,502	88
Mean of 5 tests 53.2		Mean of 5 tests 101.0	

Received Oct. 8.

Cement and Sand.		Cement and Sand.	
(3 parts standard sand to 1 part cement, by weight.)		(3 parts standard sand to 1 part cement, by weight.)	
Age 7 days.		Age 28 days.	
Test No.	lb.	Test No.	lb.
4,601	194	4,606	204
4,509	184	4,605	220
4,602	182	4,604	243
4,600	177	4,607	208
4,601	173	4,608	199
Mean of 5 tests 182.3		Mean of 5 tests 214.6	

(48) It will be observed from these tests that the average strength of brickets with standard sand and cement gave a mean of 204.6lb. at 7 days, whereas the sand (Sample No. 1) gave only 105lb. per square inch, and sand (Sample No. 2) which contained a less amount of flour gives an average result of 177.4lb. per square inch.

(49) On Table 5 the extraordinarily different

weights per cubic foot of cement are given. The same cement was used, but different methods of filling were adopted. It certainly confirms the necessity of most carefully considering whether the cement for all work should not be measured by weight, and not by cubic measure.

(50) Another test, made as shown on Table 8, shows that with standard sand we get 182.2lb. at 7 days and 214.6lb. at 28 days, whereas with the test on "flour" sand as described on the table we only get 53.2lb. at 7 days and 104lb. at 28 days.

The rock-dust used was that which passed through the 30 x 30 sieve. The standard sand was passed through 20 x 20 sieve, and retained upon 30 x 30 sieve. The tensile strength of the cement used in making the above brickets was 480.0lb. per square inch at 7 days and 583.6lb. at 28 days. Residue upon sieve 50 x 50, 0.0; upon sieve 75 x 75, 0.0 per cent.; and upon sieve 100 x 100, 15.9 per cent.

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Nor. 6, 1908

(51) A word with reference to the testing of the finished structure may not be out of place. Specifications often provide for the work to be tested with 1½ times the load for which the work has been designed to carry; a factor of safety of 4 is taken in the calculations to provide for inequalities of workmanship and materials, for allowing for fatigue of material under strain, and for isolated accidental excess loading. Considering that with 1½ times the safe load the concrete in compression is working up to 9,000lb. per square inch, adhesion 1,500lb. per square inch, 3,000lb. in shear, and steel varying up to 22,500lb. per square inch in tension, that by the application of such loads the parts so tested may be permanently injuriously affected.

If the materials are tested as suggested, in this paper, and professional supervision is given to the work, tests on the finished structure are not necessary. If it is desirable, then only the safe load should be applied; and if no undue deflection takes place no further loading can serve any useful purpose.

THE SOCIETY OF ARCHITECTS.

PROCEEDINGS.

The Fifth Ordinary Meeting of the Society of Architects for the session 1911-12, was held at 28, Bedford-square, W.C., on Thursday, March 7, 1912, at 8 p.m.

Mr. Percy B. Tait, F.R.I.B.A., Vice-President, having taken the chair, in the unavoidable absence of the President, three nominations for membership and ten for studentship were announced.

The ballot was then taken, and the following candidates were declared to be duly elected:

As Members: Edgar Oswald Brown, Hillcroft, Cross-street, Gravesend; Archibald Ellis Chasemore, 159, Victoria-street, S.W.; Percy Robert Finch, 6, Glyn House, Penryn, North; William James Kemp, jun., Fairlaw, Sutton-road, Mussell Hill, N.; John Melville Miller, c/o Hutchinson, Wood, and Miller, Montreal.

As Students: Walter Brooks, 2, Presidency-row, Cleveleys; Henry Stanley Clark, 5, Abercorn-place, St. John's Wood, N.W.; Mark Evans, 33, Empress-road, Kensington, Liverpool; Robert Charles Evans Griffiths, West Court, Bridgford; Frank Claude Haslam, 1, Rectory-road, Grays; Felix Holt, 22, Fort-street, Magazines, New Brighton; William Harry Marley, Buttrills-road, Barry; Walter Ames Miller, High-road, East Hitley; William Henry Rehbeck, Mill View, Welshmill, Frome; Robert Harold Richardson, Clarence House, Clarence-road, Wood Green, N.; Charles Swain Rhodes, 4, Clifton-square, Lytham; John Edward Sanders, 208, Bowler-street, Liverpool; Thomas Scott, The Orchard, Lemington-on-Tyne; Thomas Edwin Turner, 26, Parliament-hill, Hampstead, N.W.; Alysne Tutton, 70, Lynton-road, Gravesend.

Mr. A. Allen H. Scott, member of Council, then read a paper on "The Testing of Materials for Reinforced Concrete," of which the conclusion appears as follows:

In discussing Henry Adams, F. S. L. M. C. E., in his preface to *Adams' Thoughts*, said that Emerson's note was a subject of vast importance to the intellect, and would become of even greater importance to the heart than it was to the intellect. The note was referred to by Mr. Scott, one of the most recent writers. The keynote of the paper was "The sure of your work; let the tested and supervised thoroughly throughout the whole of its course." Testing and supervising were very important factors in the work of the building of a reliable machine, and all scientific constructions where the work had to be made, it was necessary to ensure that the material was in accordance with what it was ordered to be, and that the workman should also be of the very best, and the work itself should be of the very best. When they spoke of a factor of safety of 1 to 1, then, there is really no such thing as safety; the factor was merely to provide for the fact that one knew would happen but which could not be exactly measured, and hence the factor of safety of 1 to 1 was not a factor of safety of 1 to 1.

The author was fully compensated for employing the model for all tests to be in conformity with actual practice rather than under laboratory conditions. It was for practical use that tests were wanted, and in this case the conditions are actual practice.

The testing of aggregate to ascertain its source, in gravity, was only required as an alternative means of estimating the amount of waste, otherwise he did not know that it was of any practical value. The testing of the water, too, he thought, was only necessary when the source of supply was doubtful, or when there was some reason to suspect the purity of the water.

In paragraph 14 the author had stated that the cement for each six sets of specimens would be taken from the same consignment. He, the speaker, thought that that should read "each set of six specimens," because it was necessary in all tests to have a number in order to get a reasonable average; a single test would not do. The perfect set of tests would include such a number of specimens as would give practically a continuous curve passing through each of the groups, which was one of the values of putting tests down to curves.

He supposed that the welds referred to in the paper were end welds, i.e., for the purpose of lengthening a bar, but there could be a possible objection to the electric welding in the crossing of the various bars. It is not, therefore, a case in that welding was made in the middle. As a rule the strength of a weld was 80 per cent. of the original bar, i.e., 30 per cent. referred to by the lecturer. There have been an exceptional case

With regard to the consistency of concrete, 20 out of 25 preference among specialists was for concrete in such a state that after being poured the water pushed off on the surface (Fig. 1) more with the concrete itself in a plastic condition. The author apparently

the 20th and 21st. The author apparently thought that there would be no great cost in getting it into the hands of the public, especially under the name "A collection of 'Folioscots' from the 17th to the 20th," and the book was published in 1902. It was

The second factor that was specified in the model was the weight of the evidence. The weight of the evidence was specified as the number of times the evidence was observed in the sample.

1860, the proportion of the 50 per cent. of the population from the north, though it seemed to have increased, was less than 20 per cent. of the population, and the proportion of the population from the south, though it seemed to have decreased, was more than 20 per cent. of the population.

reinforced concrete was calculated on the "hooped core," it would be found that the plain concrete column came out stronger for size than any other, which, of course, he thought, an absurdity. The difference between hand-mixing and machine-mixing was very real, and an analogy might be drawn between the stoker of a boiler and a stoking machine, the latter giving far better results than the human stoker.

With regard to the speed of testing and the running up of the apparent strength, a few weeks ago he had been present at some testing operations at the makers, and had asked permission to use one of the machines, as it was obvious that the men were testing too quickly. Upon easing the rate of loading he obtained much lower results, with the obvious retort that he knew nothing about testing.

With regard to the weight of cement and concrete, some added by weight and some by volume, he, in his specifications, got over the difficulty by weighing the cement on the job, and altering the size of the gauge-box to accommodate 90lb.

Mr. J. H. Pearson (Member) asked for a further explanation of the diagram referring to Aggregates and Sands. He understood that the lecturer had constructed a roof 4in. thick of concrete, and which had not been rendered on the surface in any way, yet which was quite waterproof; and he would like some information as to the manner in which that concrete was made up. Mr. Scott had called attention to the difficulties which arose in getting a joint between two sections of reinforced concrete, dealt with on two separate days, but under certain conditions he thought it would be impossible for the second section of concrete to follow immediately after the first, and in those circumstances he would like to know what the lecturer would suggest to get over the difficulty of preventing any water percolation.

Mr. H. T. Cover (Member), asked whether Mr. Scott had made any experiments regarding the strength of concrete floors. He came across a case recently where some workmen were lifting a load of two tons on a jack, with a base 4in. square, placed between two steel joists 5 ft. 3 of 3ft. span and 4ft. apart, with six inches of concrete.

Mr. Percy P. Tubbs, F.R.I.B.A. (Vice-President), said he had had very little experience in the use of reinforced concrete, but what he had done had not turned out very satisfactory, nor had he found it cheap. He had recently had occasion to use it to carry a surface drain where the foundations were too bad to support it in the ordinary way, and the local authority had required him on a 4ft. span with a beam 18in. square to use steel joists. He might just as well have used steel joists. The supervision of reinforced concrete work put additional responsibility on the architect, who, if he undertook such work, should be paid not only for his professional services, but for acting as clerk of works also.

The Chairman then put the motion to the meeting, and a hearty vote of thanks was accorded to Mr. Scott for his lecture.

Mr. A. Alban H. Scott, in reply, said he was very pleased to hear from Prof. Adams that the clause referred to was to be cut out of the regulations; he did not know whether it had been finally adopted by the Council, but he hoped that it would be.

With regard to the question of the weight of cement, he believed that in the original report of the R.I.B.A. Sub-Committee on Reinforced Concrete the weight was specified 76lb. per cu. ft., and the tests in the tables referred to were made under the same conditions, and since then the 90lb. had been adopted. The question of the weight or measure of cement was far from satisfactory. However, and as Mr. Fraser had said, they all adopted a method of testing the weight of cement per cubic foot, and they would see at the bottom of one of the tables the extraordinary results they obtained. They so increased their cubic measure as to accommodate not less than 90lb. It was a fair way both to the contractor and to the client, and it certainly got rid of carelessness on the

part of workmen in throwing aggregate into the measure. There was enormously hard wear on any form of weighing machine; the waste was a matter of truth within two or three days of their use.

Mr. Monson had referred to the difficulty of making tests themselves, but he had specifically mentioned in his paper that all tests should be made by an independent firm for many reasons, one being that no architect or engineer, no matter how large their practice might be, could possibly afford the plant and apparatus necessary to get proper results, and any home-made tests would be useless. They did not show at all what the ultimate strength was, and it was impossible for any individual to get a machine to test steel up to, say 72,000lb. per sq. in. Even £2,000 per machine would be impossible for any architect or engineer with the largest business, and no matter how well up in these matters an architect might be, he could not be an expert in testing, he might be interested in the subject, and he might be impressed by the ascertained facts of other people, but he, as an architect, was not the proper person to carry out the tests.

The only real test on the job was the test of the structure, and that he was dead against, unless they could load to the super-imposed load for which the structure was designed, and he hoped that when the L.C.C. regulations came into force that some of the work which would be subjected to a test of 1½ would collapse without loss of life, because in his opinion it was asking for trouble and weakened the structure.

Mr. Kirkaldy had very kindly lent some of the test specimens before them, and had offered to explain them at the conclusion of the discussion. One was a sample from a bank which had collapsed, probably through the concrete being too wet, giving a very large percentage of air-holes after the evaporation of water, and, possibly, through too much sand being used and insufficient cement.

It was glad to hear that Mr. Bylander did not agree with the 4 by 4 cube for testing. It was not sufficiently large for testing the aggregate they were using—namely, ¾in. The reason he advocated a 6 by 6 cube was that it was better made and was more of a shape which was adopted in work generally, and with a circular column they were all the time tending to get a very much better and consolidated mixture than they did with the square one, because in the former they could ram so much better than with the latter, and with the square one they could not get into the corners. With a 6 by 6 by 12 a double quantity of material would be required, and on a big job the cost of material submitted for testing was quite considerable. He did not think a 6 by 6 by 12 would serve any further purpose than a 6 by 6 cube. The former was apt to bind the material for perhaps one-hundredth part of a second longer than the latter, which was quite large enough to give them results which they could reasonably expect to get in a job.

Mr. Bylander had asked why he limited the strength of steel to 72,000lb. His answer was that if they got it above that strength there was a tendency to increase the carbon, and with high carbon steel there was a possibility of a grain forming in the metal. If they increased the strength of steel beyond 72,000lb. there was a tendency eventually to increase the safe load. It was impossible, he thought, to increase the basis of 60,000, and it gave the steel a strength of 12,000lb. which was ample. If they allowed them a greater range than that it opened up the possibility of makers using a foreign loom, whereas with British steel they had a better chance of getting fineness in the metal. The term "Coarse Material" was now used instead of "Aggregate" in all official documents, and he would not put it.

Mr. Middleton had suggested that a proper proportion of water should be stipulated; but it was absolutely impossible to determine the point, because it depended upon so many things. First of all, upon the kind of aggregate used, then the way in which the cement was put in, the temperature, and so on; and while on that day a certain proportion would be found ample, on another, when the

sun shone, the same proportion would be altogether unsuitable. The exact proportion of water could not be arrived at, although the matter had been before experts a great many times.

The question in regard to the disadvantages of wet concrete had been very fully answered by Mr. Fraser. He did not see why they should sacrifice good work for the sake of a little extra labour on the part of the contractor, who knew exactly what they wanted and allowed for it in his prices. The very best work must be had or they had better leave the whole matter alone. The cost of concrete at the present time was 25s. or 27s. per yard, and he did not care if the price rose to 30s., so long as better work was given for it. With regard to the percolation of water through the joints in concrete in the particular case he had instanced, the work was situated in a very windy place and one which was liable to rain fall during the year. When he made the remark that water percolated through the cracks where the concrete had been joined, he meant to say that they did not get such perfect adhesion as was obtained when the concrete was laid in one operation, but they did get sufficient to protect the metal from the weather, and it was good enough for all ordinary purposes; but when they came to the case of water under great water-pressure the leakage was always at the juncture of the material. The surface should be well dried and washed, and then hacked away before the next concrete was laid down; but it would never be so strong as if it were laid all together. He did not know that any useful purpose would be served by testing a 12in. cube of concrete, and he thought it unnecessary very elaborate tests, and that people could not undertake it, nor could their clients be asked to have it done on the job.

Mr. Fraser said he could not understand why only part of the concrete within the metal hooping should be calculated for resistance compression in the L.C.C. regulations, and he had a great tendency to increase considerably the amount of hooping, and also the area of the bars would be much more than was the usual practice. In doing that it was proper to only take the interior part of the concrete, because with so much metal and the hooping so very close in the concrete, which was probably only 1½in. beyond the metal, there was a possibility of the steel separating the concrete into two different forms of structure. There was not the same strength on the inside of the column as on the outside, whereas with plain concrete there was more or less equal strength.

With regard to the roof of reinforced concrete to which he had referred, there was no load upon it, and there was a fall of 2in. in 75ft. The concrete was well done, the proportion of the material being 3 of cement, 5 sand, and 1 of aggregate. A proportion of 1 to 5 was not a very rich mixture, but it must be borne in mind that they were measured separately; when mixed, it was more like 1 to 4½ or 4. The remarks made regarding 5 by 3 steel joists, with concrete between, taking a load of two tons, showed the possibility of concrete, and indicated the further possibility of concrete in steel or iron. Their Chairman had spoken of the financial point of view, and he, the speaker, could assure them that reinforced concrete would never have been used in England by industrial firms if the financial question had not entered into it to a very large extent. Flat roofs were infinitely cheaper and floors of reasonable span could also be done cheaper in reinforced concrete than in steel or iron. Ordinary ship sheds were cheaper, and the whole matter was a question of proper design. A beam 18in. by 18in. was probably the most uneconomical section one could have in reinforced concrete. A 9 by 20 or 9 by 24 would probably give the same strength, with much less material, and the 2in. of metal mentioned did not seem very excessive.

Architects' supervision was a very big point. Reinforced concrete was a risk which should be done properly or not at all. He, personally, never employed a clerk of works, but sent out trained assistants, who superintended the job, with the help of an inspector. By such means they got infinitely better results; their clients paid their

the near future. An acrobatic performance on the highway may excite the admiration of the crowd, it may result in a splendid shower of coin, but the man who has been plodding on all the time, drinking in the beauties of the way, will find his pockets lighter than his friend's away back in the crowd, but he will be farther on the road when the day begins to close.

EDUCATION.

Whatever I have said which seems to criticize adverse methods must be discounted in considering future prospects. Architecture will be safe from degeneration if continued effort is made on proper lines to train the coming generations. Not only will it tend to develop the art of architecture, but it offers a restraining influence upon the eager but unqualified who press into a profession which to-day offers splendid prospects for many a painful youth. A high standard of education is becoming more and more essential. The tremendous interests, both public and private, which are at stake in many of the large undertakings demand a technical skill in the first place which does not but rarely obtain here. Public sympathy is shown on the part of rigorous examination and qualification for all practicing architects. This is a hopeful sign, and the universities are alive to the necessities of the case. Harvard, for instance, offered a five-years' course. There was an entrance examination which included English, French, German, Physics, Drawing, and Histories of Greece and Rome. The student had the advantages of a hall of extra-curricular, exhibition-room, modelling-room, library, photograph dark-rooms, etc. The first three years included the Technical and Historical Development of Ancient Styles, Drawing in Line and Colour, Mathematics, Languages, and Physics. In the second year, Design, Perspective, Statics, Resistance of Materials, Medicine, Renaissance, and Modern styles were added. In the third year, Building Construction, Theory of Design, Bridges and Foundations, and Muralogy were taken. In the fourth year, in addition to general topics, two special subjects had to be taken from a list which included Design in Painting, Sculpture, and Architecture, Greek Art, Fine Arts of the Middle Ages and of the Renaissance, Classical Archaeology, Private Life of the Romans, Life in Ancient Greece, Landscape Design, Aesthetics, Bridges and Buildings, Light and Ventilation. The average gross cost to the student for residence and education was only £100 per annum. There was a somewhat similar programme given in connection with Washington University, and at a somewhat similar cost. The Massachusetts Institute of Technology at Boston gave a very full five years' course with a continuous training in design for three years' Freehand Drawing throughout and one complete year in the Life Class. A feature of these college courses is the summer schools. One was in the form of a tour in Europe, particularly for the study of the work in the northern towns of Italy, finishing with a bicycle excursion from Genoa to Paris. The University of Pennsylvania offered three separate courses—viz., a four-year course leading to the degree of Bachelor of Science in Architecture, another course leading to the degree of Master of Science in Architecture, and a shorter two-year course. There was an additional three years' course in Interior Decoration. The Syracuse University provides almost equal facilities for the student. These are but illustrations of the numerous facilities for study and preparation for the profession. The total result is generally seen in the fact that the majority of the young men in the offices of practicing architects are college men with a college degree. Incidentally, there is a minimum of the mechanical drudgery which in many London offices is handed over to inexperienced youths who may possibly grow up to exploit the special features of the work done by their employers. If one may venture into the realm of prophecy, it may be to express the belief that there is a bright prospect for architecture in America. The question is whether this will be realised in the near or distant future depends upon one main factor

—viz., the education of the public in the taste for the beautiful. As matters stand at the present time, art may be degraded and good taste may be corrupted by being compelled to follow on the heels of those who act on the principle that just as in some commercial undertaking wealth and power can demand a rigid obedience, so in the realms of art the artist must follow the lead of his employer, provided he can purchase his compliance at a princely price. The good time would be his when the mercantile spirit should be a period of commercial depression. Architects might then find time to turn their attention to the everyday affairs of the community. A tenement house would not then be recognised as now, as a ghastly imitation of a factory, or the ordinary suburban dwelling as something very much akin to a wooden barn. Architects might then find time to raise protests against the desecration of the public streets by hideous advertisements and encroachments upon the public convenience by corporations whose only concern is for the dividends of their shareholders. There would then grow up a corporate sense of what is good, and that a man should not have a free hand to offend the good taste of his fellow-citizens, even though he may be a successful business advertiser. In conclusion, may I again venture a prophecy that if we are anxious to make real progress we shall do so only on the lines adopted with success in the States. Registration is a futile procedure if it results only in shutting within a ring fence the good and the bad. We must be trained where all real progress begins—in the school and in the workshop—in the public Press, in the common affairs of life. When the authorities who are responsible for the bridges across our rivers and the lamp-posts in our streets, when the factory and mine proprietor who can and does blast the landscape and ruins our buildings by the reek of his works, when the workman, as in days gone by, when it is said, is not a man but a beautiful thing as it is to make an ugly thing, when the community at large expects that the little things of life shall be presented in a true and beautiful form, we shall have no cause then for anxiety for those larger works which have too long been looked upon as the only and proper sphere for the architect and artist.

Mr. C. C. Brewer, the Gobwin Bursar in last year's competition, said: The chief characteristics of American architecture today seem to me to be vigour, competence, singleness of purpose. All these are, of course, the outcome of the national spirit, the amazing commercial activity, and the climatic conditions. A country progressing so rapidly in material progress has a pressing need of a race of competent and vigorous architects, and forces them to the single purpose of erecting the best possible building in the shortest possible time. It leaves them no leisure for the "Hopes and Fears of Architecture" or "Philosophic Doubts." In judging the work of architecture in any country, the chief, or the one thing that is only fair to put out of our perceptive, is the recent of the buildings. We must judge by the large public buildings, the railway-stations, the office blocks and stores, and by the thoughtful and more serious domestic work for either the rich or poor. An international comparison of cinematograph palaces, public-houses, and the domestic vulgarities of the *nouveau riche*, on the one hand, or the meanness of the jerry-builder on the other, would be neither to the point nor profitable, for the first are merely a form of pictorial advertising, and the jerry buildings are merely temporary structures within the meaning of the Act. In America, however, I believe that there is a smaller percentage of both the blatin and the mean than in most European countries, for the Americans are dealing with big schemes and new ideas even in advertising, and mean buildings grow less mean when set in the ample suburbs of American cities. As an example of what I mean by big ideas, even in advertising, I would instance the New York Pennsylvania Railway Station in New York, a new station becoming necessary, the idea that the finest and largest station in the world might be no bad advertisement seems to have occurred to

the directors, and the next step was to employ an architect of large and fine ideas: their choice fell, luckily, upon Mr. McKim. He seems to have carried his mind right into the scheme, but surely his enthusiasm was carried then on till the undertaking grew almost in the spirit of cathedral building. The result is a temple to the glory, not only of the Pennsylvania Railway Company, in particular, but of well-ordered and swift transport. Imagine an entire railway station with its fittings and furniture, even to the spittoons designed by the architect, a railway station so planned and so contrived that there is no noise nor bustle, where no porters intrude with luggage, and where it has even been thought worth while to forego the profits of the bill-sticker that all may be well ordered and dignified. It is as if the directors had said: We will startle the public, not with glare and noise, but with money-making, but with order and respect. And so today the conception of a railway-station as a dignified thing seems to have taken hold of the Americans, and we have the big Washington station and others in the same spirit. Comparing these with the three latest termini in London, the Great Central and the two at Victoria, which had not even the sense to be one—we were for London. The idea of the dignity of commercial enterprise seems growing upon the business men and showing itself in the stores, office buildings, and banks. Can the Americans be learning the market value of respect in the midst of their strenuous life? It may be made by Americans to-day, but it is not evolving a national style. It is merely difficult for contemporaries to judge whether or not a style is being evolved in any art, and it is probable that the same critics, had they lived in the fifteenth century in Italy, would have been chiding the architects for being mere copyists of the Romans. I cannot believe that men who are approaching architectural problems with the freshness, vigour, and clearness of thought of the Americans of today will not leave behind them something worthy to be called a national style, even if they are content, for the while, to use and reuse the language of the past. Speed and hustle are the natural parents of copying in architecture. The man, set face to face with enormous problems, who is asked to give speed, turns naturally to the textbook for his details, and I am not sure that, given speed as one of the conditions, the results do not gain in the process, for the architect has the more time for mass and the big idea. Certain it is that the trend of architectural training in America is to this end, to train competent architects, not copyists, and to train the thinkers and writers on architecture. The man who knows where to find chapter and verse in these wonderful libraries which seem to be a sine qua non in every large office, and how to use the matter when found with a competent good taste and discretion, is the man to help the designer of big schemes, and to make a draughtsman see a draughtsman on the architectural side of a big office without a great folio of Renaissance or Classic art at his elbow. A word as to training. Mr. Danby has given a rough sketch of the curriculum in vogue some ten years ago, but has said no word as to the influences at work within the schools themselves. That that entirely French man will deny. At the time of my visit Harvard was preparing to celebrate the arrival of a French born, speaking, and trained Professor of Design, and Harvard was the last college to hold out against the Beaux-Arts tradition. All the others had already either Frenchmen or Americans trained in the French manner as their guiding spirits. Harvard and Boston architects had long fought for training on more English lines, but the force of the Beaux-Arts movement, as evidenced by the roll of students in their own and other colleges,

CURRENTE CALAMO.

In addition to Mr. John A. Brodie, the City Engineer of Liverpool, the Secretary of State for India has appointed three more experts to advise the Government of India in the laying out of the new capital at Delhi—viz., Captain George Swinton, chairman of the London County Council; Mr. Edwin L. Lutyens, F.R.I.B.A.; and Mr. H. V. Lanchester, F.R.I.B.A. The committee will assemble at Delhi about the middle of April, and act under the instructions of the Government of India. The work is expected to occupy four or five months. Captain Swinton, who has dealt in several published papers with the problems of London traffic, had experience in India, having acted as an extra aide-de-camp to Lord Lansdowne when Viceroy of India. The qualifications of the two architects chosen are of the highest, and it will gratify every member of their profession that they are to serve. Each has achieved distinction of a very high order indeed, and the work of both is stamped by great genius.

Heartily congratulations have followed the King's bestowal of knighthood last Saturday on Sir Maurice Fitzmaurice, the chief engineer of the London County Council. Sir Maurice Fitzmaurice, who designed the engineering work for the Embankment wall of the new County Hall, has been chief engineer to the London County Council since 1901. He was born in 1851, and was educated at Trinity College, Dublin. Among the works with which he has been associated in London as engineer are the Rotherhithe Tunnel, the new Vauxhall Bridge, Kingsway and the tramway subway, and the electric tramway service. He was also engaged on the construction of the Forth Bridge, the Blackwall Tunnel, and the Nile reservoir-dam at Assuan, for which he received the Order of the Medjidieh. In 1902 he was created C.M.G.

The King's presence at the London County Council foundation-stone-laying last Saturday will undoubtedly, as the *Times* remarks in a leader last Monday, help to draw public attention, especially of Londoners, to the desirability of securing the services of able architects for important buildings, and protecting them from the hampering of their efforts to do their best by official interference. Nothing can have been fairer or more judicious than the action of the London County Council with regard to the erection of their new hall. They have secured a fine building for the ratepayers' money, and most fortunately they have been able to associate with the chosen architect the experience and co-operation of one of the ablest superintending architects any municipal body has ever possessed, and the skill of the no less able civil engineer in his own department, so promptly recognised by the King last Saturday.

One may well hope, therefore, that the good fortune of the London County Council will have its effect on other bodies and on public opinion. Perhaps it is hardly fair to say, as the *Times* does, that "if anyone wishes to see the best of our modern architecture he must look for it in private houses, in restaurants, in flats, in theatres, in offices—in fact, anywhere rather than in those public buildings where he would expect to

find it." But it is, unfortunately, true that there is too often "in England an almost complete estrangement between the mass of our best architects and most public and official bodies. To them an architect is not an artist at all, but a man who makes plans for buildings, which he must alter at the will of any official person, and who supplies as much irrelevant ornament to those plans as the authorities choose to afford." The result, time after time, as at the House of Parliament, the Law Courts, and elsewhere, has been stupid and vexatious interference which has spoiled the buildings or given their erection to second-rate men. It is well this should be emphasised just now, when, as the *Times* says, "we have better chances of beautifying our cities than we have had at any time since the death of Wren; but as a nation we throw them away with both hands."

One can only regret that the rejection of the London County Council Lambeth Bridge Bill yesterday week by 180 to 115 votes in the House of Commons marks a mistake which was very inadequately defended by Lord A. Thynne, who said the only object of the bridge was to provide a relief bridge for Westminster and Vauxhall; but it was designed, in width and every other respect, to carry traffic, and would be wide enough to carry a tramway-line should this be ultimately considered necessary. That was a very poor justification indeed, and we are not sorry that Mr. Burns's demand that if Parliament sanctioned the proposal to make the bridge only 48ft. wide, the Council would put in abutments wide enough to carry a bridge similar to Westminster or Vauxhall bridges, which were 84ft. and 80ft. in width respectively, was held insufficient, and the Bill as a whole rejected.

As in some minds there seems to prevail an impression—quite unfounded, as readers may have gathered from our own previous comments—that the appointment of a committee by the Council of the R.I.B.A. to consider the whole question of Registration marked the abandonment of the policy of the Institute as settled by the resolutions of March 4, 1907, and the postponement of further consideration of the incorporation of the Society of Architects, it is as well to give the following definite statement of the chairman, Mr. Leonard Stokes, at the business meeting of March 4 last, which we take from the last issue of the Journal:—

THE QUESTION OF REGISTRATION.

Mr. Maurice B. Adams (F) referred to the announcement, in the last issue of the Journal, that the Council had appointed a committee to consider the whole question of Registration, and asked the following question, to which he had already given an answer: "Whether it is the policy of the Council to postpone further consideration on the part of members of the Institute as to incorporating the Society of Architects until after the committee appointed to take evidence on the question of Registration has made its report; and whether the appointment of this committee to take evidence as to Registration implies that the Council considers the matter to be still an open question, seeing that the Institute as a body has already committed itself to the policy of promoting a Bill before Parliament for the Statutory Enforcement of Practising Architects?"

The President replied: The Council do not consider that the question of Registration is still an open question. We consider that the Institute and the members are bound by the resolutions passed on March 4, 1907, to the Council's policy, that of January 8, these having been referred back for further consideration, the Council have appointed a strong committee to consider the matter and report to them on the subject. The Council will in due course report to the general body.

Readers who remember his many contributions to archaeological and other societies

which have appeared in our last volume must have been disgusted with the *London Yellow Pages* and their wish for "to go to Chelsea this week to Dr. John S. Phin's home, as soon as the breath was out of a body, last Saturday. Few of us, I suppose, live to ninety nowadays without accumulating some sad memories; or the certainty be as us, if our names are known ever so lightly beyond our own circle, that the "man-headed beast" is waiting to interview a jolting gardener or other domestics for bits about our eccentricities, and quaint descriptions of our personal habits and appearance. Many rubbish has probably seldom been strung together than has been invented or exaggerated about Dr. Phin's whose activities were many, though mainly archaeological, and in the pursuit of which his researches in Italy, Greece, Asia Minor, India, and Western Europe had been most persistent. Our impression of him always was that he would spare neither time nor money to substantiate a fact or support a theory. Among his many papers we remember being struck with one we gave in our issue of May 17, 1878, in which the labour was recorded of many months spent exploring the islands off the Brittany coast, in order to arrive at the location of the mystic Avalon. His house at Chelsea was, it is said, an embodiment of the ancient home of his family, the Chateau de Savenay, on the Loire. We have never seen the interior ourselves, but if an account we remember reading some five years since of a fête given in the grounds to the members of the Clothworkers' Company, of which he was then the Master, was reliable, it must have contained one of the most remarkable collections ever gathered together. Dr. Phin was a life Fellow of the R.I.B.A. He read frequent papers before that body, the Architectural Association, and many archaeological societies. He was buried at Kensworth, Beds., on Wednesday. His wife, Margaret Forsyth, whom he married in the early fifties, died at Paris in the seventies. Their parting, due to incompatibility of temperament, was lamented by the friends of both. The legends about "death on the bridal morn." etc., are, of course, the merest moonshine.

The Theatres Committee of the London County Council has promised Sir George Alexander to report generally upon the question of municipal and rate-aided theatres. The committee has plenty of good precedents before it which would enable it to vote money on Sir George's scheme. On the Continent, of course, the principle of subvention of opera-houses is extensively recognised, and not only are there opera-houses in Paris, Berlin, Vienna, and Brussels maintained by the State or out of the Sovereign's privy purse, but in a large number of cities the municipalities vote grants to opera-houses to insure the production of the best music at reasonable prices. In Lyons, Bordeaux, and Toulouse the municipality votes in each case £9,000 a year. In Frankfurt and Breslau the town councils pay £10,000 a year, whilst Geneva not only erected an opera-house at a cost of £150,000, but contributes £7,000 to keep it going. London alone is strangely behind; but the time will come when not merely the London County Council, but every Metropolitan borough, will have its theatre, in spite of the Eastern opposition of the sort that met our own advocacy of the idea, several years since, on the St. Pancras Borough Council, fortified though it was by

argued against "Why Not's" plan; but he has so little estimated the elementary simplicity essentially appropriate to a project of this kind as to make his church far too ambitious. At the same time the author has shown a certain picture-squeak and breadth of handling. The south elevation is pleasing, and elevationally the tower looks right; but the bell-turret and the sort of quasi-transsept hampers up the outline of the church and conflicts with the tower. No second entrance was really needed, and the small sacristy, away from the vestry, is not wanted, neither is the return porch, or so small a church. The conveniences, tacked on to the west side of the church, are very poorly placed, and the women having to perambulate round the men's place hardly seems a nice arrangement. The vestry and organ contrivance is similar to "Liver's" plan, but not so convenient, and the south aisle, though it shortens the nave, adds to the cost by the same addition, the choir being termed "open." If so, what is the use of the radiators? How are we to get to the vestry door while the steps down to the heating-chamber come right in the way? There would not be available head room above the basement steps, so far as the drawings show. The little organ would not need a crypt to accommodate its bellows. "Five Towns" and others would do well to compare their arrangement of the subject on the sheet with "Liver's" setting out. He has room and to spare, instead of crowding up every atom of the papers, as "Five Towns" has managed to do, to the detriment of all good effect.

"Mick" makes his church very square on plan, by the employment of two aisles. The clergy seats are admitted in the chancel, and the organist would be seated away from the choir, in the passage-way, rather awkwardly. The lavatory adjunct is not economically managed, and the vestry is not so well placed in regard to the sanctuary as in the last plan, and space is not economised in the body of the church. The tower is nicely set out, and we receive approval of the elevation of the church, or command the south gable, with the fussy little bell-turret perking up so unimpressively.

"Mick" sends a sturdy sort of building, adapted to its environment, though, as a matter of taste, the battered walls of his square tower do not appeal to our judgment, and the proportions are not happy either. We think the passage approach to the men and women's conveniences is not very suitable. The font is rather hampered by the adjacent pews, and the side passage for communicants is a trifle awkward. "Mick" has, however, endeavoured to give a little "go" to his elevations by the grouping of their parts, and his bell-turret, strongly flanking the east gable, is commendable. The very wide eplay of his main-entrance door-jambs and his detracts from its scale and pleasing contour. "Mick" before we makes an altar, "Theos." This change of motto must not occur again; it only leads to mistakes and loss of drawings.

"Black Diamond" (device) has so many good points that his want of some more precise acquaintance with the details of church contrivance is the more to be regretted. He handles his design broadly, and works it well; in fact, he takes two sheets and fills them with work. His tower and cloister are among the best, and, by assuming the fall of the land to exceed what we intimated, he places the very ample pair of vestries in a crypt, with an entrance-door below the chancel east window. The side aisles of the nave are narrow passages, contrived quite properly, and the section shows ingenuity and skill. The men and women's conveniences, side by side, are not likely to be a success, and are too exposed, casual ineptness, if not worse. "Black Diamond" must fail in this competition because his chancel arrangements are utterly at variance with the usages of liturgical celebrations. He shows the communicants' rail at the entrance of the choir, between the pulpit and the lectern. The celebrant would have to traverse the length of the chancel every time he administered the elements to two kinds. The altar-pate is badly set out,

and there are no stalls and prayer desks for the clergy. The big piers of the nave would obscure many seated behind them from seeing and hearing properly. The organ-chamber is as bad as the so-called third aisle, and the side of the church is very ugly. The west's opening directly out of the sacristies in the basement would be offensive.

"If" (hitherto known as "Nil Deperandum") has not adhered to the scale stated, and his plan is too ambitious, showing also what looks like a vaulted-way for the return of communicants, put behind the organ. Having so much room to waste on his sheet, he fills it up with an enormous title. The sloping buttresses to his church spoil its appearance. The tower has a conical roof, and there is an aisle on the north side. Two vestries are provided. The cloister from the tower to the nave is grained. A mountain effect is given to the perspective, and this view shows how very broken up in outline the church would be. The belfry opening is too small to let the chimneys be heard properly.

"Ecclesyastus" is unequal. The tower affects a scale which must be intended to belong to a really big church, and yet the section of the nave is inconsequential, suggesting a poorly-handled little institutional chapel, with a pretentious hammer-beamed roof, starting off quite low, just above the pew-tops. The curved triangular opening for the sanctus bell in the southern gable of the sanctuary, is a very ugly feature, and the external door to this bell-chamber below shows that the author has no proper idea as to the use intended. A w.c. flanks the sanctuary on the north side, to make the balance true on plan, and no ventilated lobby occurs between it and the clergy vestry. The organ is not well accommodated, and the pulpit is mixed up with the choir seats. The public conveniences are got at from the tower porch by angle-set stairs, and the first thing the first thing that is by no means so questionable an arrangement, however, as the description suggests.

"Veritas" draws in an inky manner. His squat tower appears as if it had been shorn of its upper stage, and the big square window to light the "waiting room" has the effect of having been a later insertion, regardless of the earlier style recessed and arched treatment above it. The open cloister is deserving of the same objections, which we look in our notice of "Waver" and "If." The return-way south of the chancel is 6 ft. wide—just as big as the space provided for the organ, with the keyboard on the east side of the instrument, turning the organist's back to the altar. A store cupboard is put in the Epistle side of the sanctuary, and a vestments stack room is situated as a companion to it on the Gospel side.

"Sirra" contrives his sanctus bell-turret over the south wall, and makes an entrance to the church below it. This door may be needless, but the idea is a good one. The drawings fail to do the scheme justice. It is a commonplace scheme, illustrating little knowledge of church architecture or its practical requirements: witness the wasteful organ-chamber and vestry, entered immediately out of the churchyard, and only a cupboard to divide it off from the church.

"Cheer Up" sends a tower which has a main elevation strangely suggesting "two eyes, a nose, and a mouth," the latter being the straight-arched entrance portal so oddly and wonderfully made, with the arch-mosses indicative of teeth, and a pierced parapet on one side of the lean-to, to carry a lamp. The cloister connecting the tower with the nave extends east and west, and, like the waiting-room porch, it is grained. A ladies' room is tacked on to the west front of the church; but we are spared a drawing showing how this comes in elevation. The altar-pate is called the "sacristy," which is a trifle confusing, and the sanctus bell-cote is stuck on to the angle of the east end wall, over a staircase which leads to a door some few feet below the church-floor level, opening into the churchyard on the east end. The font is tacked on in after the fashion of a very big pew. The "gents' lavatory" is upstairs, and is

got at from the entrance portal, and continued over the cloister leading to the church.

"Appin" has a square tower, somewhat too big. This plan for the church is exceedingly poor. The sheet of paper exceeds the specified dimensions. "Bruton" makes the same error. He puts a wooden gilded open porch to the tower, and draws in his centre-lines in a very chic way. He puts a flatly-roofed apse to the church, which, again, is not very attractive. There is a morning chapel, such as we did not specify. The church is No. 372. "Bruton" is much to be commended, and also uncertain.

"Dogenes" sends a moderately suitable plan, which in detail is indifferently poor. The tower, if strongly looking, is lacking in interest, and the church is not calculated to raise our good thoughts or possess enthusiasm. The paper used is much too ample in size.

"Wags" makes the same mistake and omits to supply his square tower with a bell. The caretaker is taken care of by being placed close to the clergy vestry, which suffers from the w.c. being shed out of it. The tower has a dwarf spire. "Broad Oak" puts his organ up by the north side of the sanctuary, with a w.c. tucked in behind the bellows. The font is stuck up in the corner at the west end of the sanctuary. These aisles are merely passages, and out of the southern one there is a semi-octagonal porch with a turret springing up over for the sanctus-bell. "Nether-dwell" has certainly not done much to redeem his position this time. The w.c.'s for the two sexes open immediately out of the short connecting corridor, and are side by side near the main porch under the tower. This is very handy, no doubt, but much too prominently placed to be pleasant. The tower, on old lines, is the most capable part of this proposal, and if the building lacks inspiration it would not, perhaps, be out of place amongst the hills of Wales. "Scot" puts his tower on the north side, and he links in every individual stone, which must have been a tiring process, not worth all the trouble expended on it. The plan is wasteful, and the Episcopal Church has nothing to spare on waste in Wales just now. "Nipper" and "Eugene Wallis" are about equal in merit, but neither competitor is strong in church design or its needs. "Country Yoked" is far from being an eminently efficient draughtsman, and we regret not to be able to place him higher. He has much to learn before he will be able to design a good church, if we are to take this as a criterion of his abilities at present.

Owing to extreme pressure on our space this week, we are reluctantly obliged, at the last moment, to leave over till next week the block illustrating the second preliminary design in the BUILDING NEWS Designing Club Competition, and also other important articles.

THE BUILDING TRADES EXHIBITION, RUSSHOE, MANCHESTER.

A FEW EXHIBITS WORTH NOTING

The Building Trades Exhibition at Ru-shoelme, Manchester, organised by Mr. H. G. Montgomery, who has successfully managed the exhibitions at Olympia, was opened on Saturday last, and will remain open until the 23rd inst.

Those of our readers who have visited the London exhibition will find little of novelty; but those firms who have exhibits have made a good show, the building being particularly adaptable for an exhibition of this kind. We have only space for a brief review of a few, amongst whom are Messrs. Chubb and Son's Lock and Safe Co., Ltd., 128, Queen Victoria Street, E.C.4, who exhibit various examples of their well-known specialities and latest developments in the construction of security appliances. A group of four strong-room doors is shown of various qualities, also a new type of party-wall door, made of reinforced concrete covered with steel plates, according to a special construction for which the makers have obtained provisional protection for a patent. Chubb's well-known light steel adjustable shelving is shown; also safes of various qualities, including one of

Our Illustrations.

DESIGN FOR THE CATHEDRAL AT WESTMINSTER.

PREPARED FOR CARDINAL VAUGHAN BY
MR. ARCHIBALD DUNN, ARCHITECT.

Some time ago (April 6, 1906) we were able to give the interior view of this design (together with a plan, which was exhibited in the Royal Academy). We are now able to give a double-page plate (from a drawing by

A MOUNTAIN CHURCH IN WALES.

(For the assessor's award in this BUILDING NEWS Designing Club competition, see page 376.)

HOUSING AND TOWN-PLANNING POINTS.

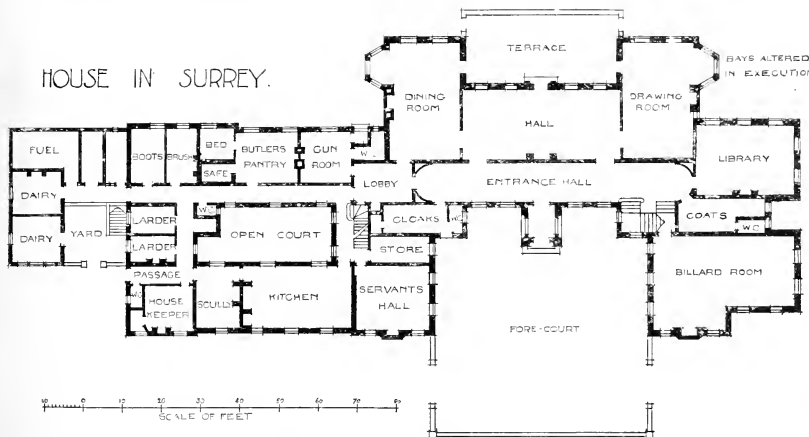
At a provincial sessional meeting of the Royal Sanitary Institute held at the School of Technology, Manchester, on Friday night, Mr. F. W. Platt, building surveyor of the Salford Corporation, read a paper on "The

Mr. Alexander, architect, of Liverpool, said that if they were to make progress, it was essential that the inhabitants of every town should at once form a society of specially qualified men to put the provision of the Act into operation.

COMPETITIONS.

MURTON.—Mr. J. J. Dobson, of Radridge, South Wingate, has been chosen architect in a competition promoted by the Easington Rural District Council for plans of three types of miners' dwellings at

HOUSE IN SURREY.



MR. ARNOLD MITCHELL, F.R.I.B.A., Architect.

Mr. Tom Rooke, R.W.S.) of the exterior view of the same design. It is conceived in the spirit of the best period of English Gothic art. The total interior length, including narthex, is 300ft., the width across the transepts 180ft., the width of nave and sanctuary 40ft., the interior height 90ft., the height of spire 315ft. A carrillon tower 170ft. high stands almost detached at the west end at the corner of Ashley-place. The estimate (£220,000) was found to exceed so much the funds at disposal that it was necessary to abandon the scheme for that reason. The accommodation provided was for 4,000 persons, and there were twenty chapels round the sanctuary and aisles. These were divided by stone screens of open tracery.

HOUSE IN SURREY, AND ORGAN AT HARROW.

This house—of which we give an exterior view of the garden front, an interior of the corridor hall, and a ground plan—was built in brick, roofed with tiles, and the masonry in Ham Hill stone. Messrs. Hylett and Hammond, of Guildford, are the builders. Mr. Arnold Mitchell, F.R.I.B.A., is the architect.—The billiard-room organ illustrated on the same plate has been erected in a house at Harrow. It is executed in silver birch, corresponding with the panelling and floor of the room. The architect is Mr. Arnold Mitchell, F.R.I.B.A.

HOUSE AT PANGBOURNE.

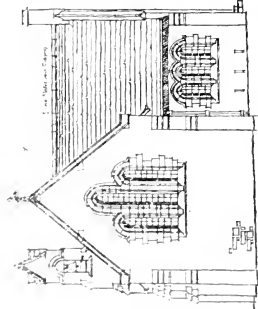
This house has been built by Messrs. John Parnell and Sons, of Rugby. The materials are brick and hand-made tiles for roof, with pressed tiles for walls to upper stories. Most of the joinery and panelling is of waincot oak. The billiard-room is of bird's-eye veneered mahogany inlaid with green shell and mother-of-pearl. Mr. Arnold Mitchell, of 17, Hanover-square, is the architect.

Application of the Housing and Town-Planning Act to the Redevelopment of Suburban Areas Now in Process of Transition." The purpose of Mr. Platt's paper was to discuss how far the provisions of the Act could be applied to suburban areas now partly built upon, with the roads formed, the character of the buildings upon such roads, and the general laying-out of such areas as are now changing by reason of external influences. He said that until the advent of electric and motor traction it was the custom of business men to live in an area generally not more than three miles distance from the centre of a town. The increase of the smoke nuisance from domestic buildings, and the unregulated laying-out of adjacent land, had caused these suburban areas to be no longer desirable, and the former residents had found that it was not less convenient to live some distance from the city. Thus it often happened that portions of these areas, with their well-planted grounds and desirable trees, were handed over to the speculative builder, who ruthlessly cut down the trees and formed the regulation uninteresting roads. His only object seemed to be to crowd as much as the local building laws would allow on a given piece of ground. Mr. Platt argued that these areas might be so planted and formed as to preserve any natural features of beauty. If this were done, emigration would be retarded, and a generation lower in the social scale, but none the less good citizens, would be encouraged to inhabit the districts. Town planning, he said, must be progressive to succeed, and if, under the application of the Act in the redevelopment of these formerly desirable areas, the amenities, convenience, and sanitary conditions of life were maintained, the Act would have solved a difficult question. Sanitary enthusiasts could do much to further the accomplishing of that desideratum.

Murton. As many as 120 architects competed. The designs submitted were exhibited at the Council Offices, Easington, from October 25 to January 27 last, during which period the council met from time to time and considered them, with the aid of Mr. William Milburn, architect, of Sunderland, acting as assessor. After eleven weeks, the council finally decided in favour of Mr. Dobson, "whose plans conformed most nearly to the conditions of the competition and to the requirements of miners' dwellings." The estimated cost of the three types is £150, £165, and £200, respectively. The architect is to undertake the whole of the work for 2½ per cent. on the actual cost. From correspondence which has reached us, we imagine dissatisfaction is locally manifested; but as one competitor who complained subsequently wired us not to publish his letter, we refrain. Any reliable information will be acceptable.

The Lord Mayor has received a letter from Sir George Reid intimating the desire of a number of Australians to perpetuate, in the City of London, the memory of the opening of the Commonwealth Parliament by the King, when Duke of York, by presenting to the Corporation a mural painting or fresco depicting that ceremony, presented a suitable position can be found for it in the Guildhall.

The committee of the forthcoming exhibition of designs for mural paintings and for the decoration of schools, etc., have now issued a final circular containing full particulars of the competitions offered to artists, and of the exhibits which it is hoped to secure. The exhibition will be opened at Crosby Hall, Chelsea, S.W., on Saturday, June 1; and a number of designs of wallspaces to be decorated, and of funds to hear the expenses, have already been secured. The circulars will be sent to anyone interested on application to the Hon. Secretary, Mural Decoration Committee, Crosby Hall, S.W.



• East Elevation •

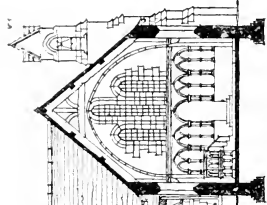
♦ B.N.D.C. ♦

Design for

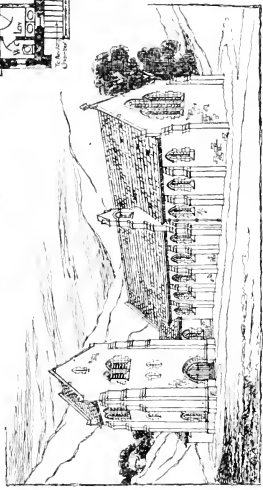
A MOUNTAIN CHURCH

in WALES

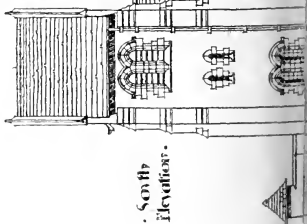
By LIVER. March 1912.



• Section •

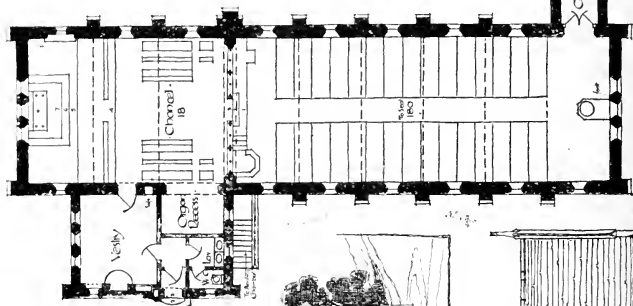


• View from South East •

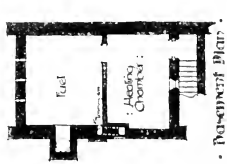


• South Elevation •

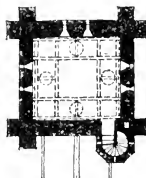
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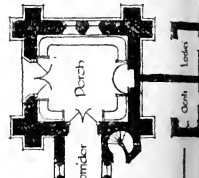
• Ground Plan •



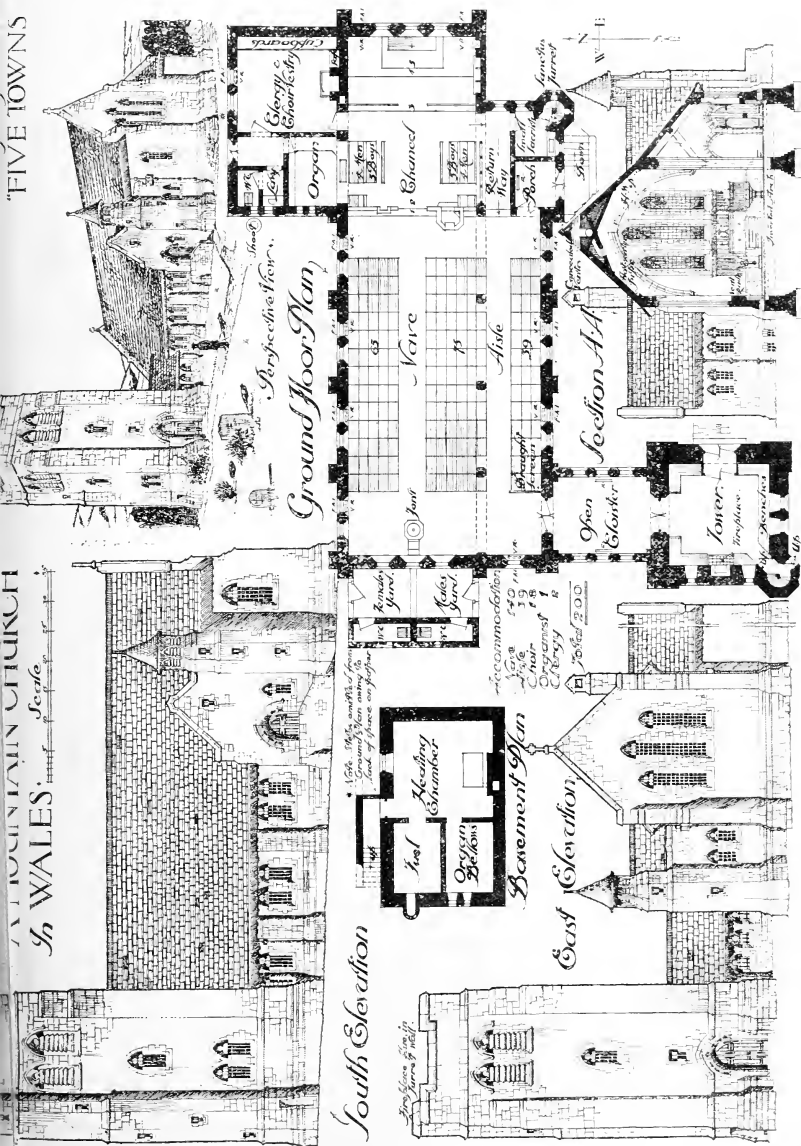
• Basement Plan •



• Plan of Ringers' Room •



• Porch •



the flesh parts, for example, was toned down or polished, sometimes with some addition of a colour or tint. In this case the colour is not opaque, but transparent, and again makes it easier, not more difficult, to appreciate the texture of the material. I think it is a suspicion that paint is used to conceal one inferior material which is responsible for much of the prejudice against coloured sculpture.

But even after we have realised in our imagination what any work of Greek sculpture was like when it left the sculptor's workshop; when we have allowed for the conditions under which it was meant to be seen, and have eliminated in our mind not only the ravages of time, but the additions and modifications of the modern restorer, we have still to consider whether it is an original Greek work or a copy, made in all probability for the Roman market. There is an immense number of such copies in all our museums, and in many cases the masterpieces of the great sculptors of the 5th and 4th centuries—of the age of Pheidias and Praxiteles—only survive for us in this form. The difference between a copy and an original work is always great; but it varies considerably according to the period when the copy was made, and other conditions. It may be said, in general, that a copy of Roman date, while it is more likely to aim at mechanical accuracy, is less likely to catch the subtler qualities, the spirit and character of the original; while a Greek copy or replica, whether contemporary with, or later than, the work it reproduces, is likely to give us a truer notion of these subtler qualities, even though it be less faithful in details and accessories. An excellent example is offered by the head of the Melager in the garden of the Villa Medici, as compared with the Græco-Roman version of the same in the Vatican Melager. This is a matter in which one or two actual examples are more instructive than any amount of description. As another example we may take the Agias, a contemporary replica of a statue by Lysippus, in comparison with the Apoxyomenos, probably a Græco-Roman copy of a Lysippean work. If, however, we could appreciate and understand the essential differences between ancient and modern sculpture, we must not only consider all these external and more or less accidental conditions and relations, but also the conditions under which the ancient Greek sculptor actually worked. Here, what might at first sight appear to be his restrictions and limitations, were really his strength. He was bound by tradition and convention to a degree which is hard for us to realise. But, instead of allowing this convention to strangle his art, as was the case with the artists of Egypt and Mesopotamia, he made it serve as a channel to keep in a deep and vigorous stream the artistic impulse which else might have been diffused to no purpose. We find, in fact, that he repeats himself, and that what seems at first almost wearisome monotony, is in fact a number of fixed types. But such a repetition of types is by no means always a sign of

the early Greek artists, in a practically indistinguishable form, to represent a figure in a temple, alone, all Apollo—a vigorous athlete, or a conventional figure on the deceased set up over a tomb. But the type as we may see it was not merely conventionally borrowed. It was repeated again and again from the trained memory of the artist, and this trained memory, by ascertaining psychological rules, refined only two aspects of the figure, the full face and the profile; but at the same time he was able to produce his figures, working freeland from memory, with an extraordinary degree of certainty and facility. He was thus able to dispense not only with a posed living model before him as he worked, but also with any full-sized model of clay or other material to guide him in his work. Small workshop models, or sketches frequently by all men of the state; the custom of athletic nudity thus gave the sculptor an opportunity for study of the living and moving athletic form such as never has existed before or since, and consequently it is above all in the nude male figure that the Greek sculptor excels; but the restriction to a few clearly-defined poses enabled him to concentrate all his attention upon the improvement in proportion and in detailed modelling; freedom of pose came later. We might easily follow the same line of development in other types—the draped female figure, for example, where the beauty and sculptural fitness of the clothes worn in ordinary life obviated the necessity for draping a posed model in unusual garments; or the flying victory, the wounded warrior, or other less obvious types, each developed on its own special lines. It was by such means as this that there was built up a series of types, a basis of naturalism that offered a holding for the idealism of the 5th century, and though this basis was modified to some extent by late realism, it was never completely lost. Even later Greek art, though it freed itself from the trammels of early convention, never substituted for it the complete anarchy we too often find in modern work. As a result it may sometimes lapse into the somewhat lifeless tradition of the Later Classical age; but at least it preserves even then much of the character of the great period of Greek art, so that it was possible for men like Lessing and Winkelmann to recognise in works like the Laocoon and the Apollo Pylæus those essential qualities of Greek sculpture for which we prefer to go to the Elgin marbles.

THE "BEAVER" PIPE-CUTTER.

The "Beaver" pipe-cutter embodies an entirely new principle in cutting a hole, operating in the same manner as a die-stock.



weakness in art; we have only to think of the iteration of familiar types, such as the Madonna and Child, in Medieval and Renaissance painting. It is not, however, a mere mechanical repetition; for the early Greek sculptor was constantly observing Nature and striving to embody the result of his observations in his repetitions of the well-known types. We can see this most clearly if we take one only of these types, that of the nude male standing figure, and follow out its development in some detail. In its origin this type was evidently borrowed from the common Egyptian type; but it was used by

It is self-feeding, and therefore obviates the necessity of screwing the cutters on to the pipe; it is self-centring, and cannot make crooked cuts. No burr is left, either on the inside or outside of the pipe, so that reaming or filing is unnecessary. By the use of this tool, pipe-screwing is facilitated, more accurate threads can be cut, and the life of the dies increased.

The "Beaver" pipe-cutter will pay for itself in a fortnight. To prove this, it will be sent on a week's trial free by the makers, the National Radiator Company, Ltd., 439 and 441, Oxford-street, London, W.

OBITUARY.

Mr. Dunlop McNaughton, F.R.I.A., of Glasgow, has died, at the age of 83, after 70 years. Mr. McNaughton served his articles with the late Mr. Spence, afterwards assisting for a time in the office of Messrs. Campbell Douglas and J. J. Stevenson, Glasgow. Coming to England, for a year he followed a definite course of architectural study, attending the art classes at Kensington, and visiting the principal cathedral towns. He started on his own account in Glasgow in 1871. His practice in hotel public and municipal buildings, churches, halls, schools, country mansions, and villas, extensive warehouses and shops. Among his principal buildings were the Marlborough Town Hall, the Baltic Chambers, Wellington-street, Glasgow; Lord Kelvin's warehouses, county and police buildings, Dumbarton; and schools for the Glasgow, Marlborough, New Kilpatrick, and Rutherglen School Boards.

Mr. Fernand de Dardene, of Paris, whose death, in his seventy-fifth year, was recently announced at the last meeting, was elected a corresponding member of the Royal Institute of British Architects in 1892. He was a student of the Ecole Polytechnique, and passed from there into the service of the Ponts et Chaussées, of which later on he became Inspector-General. He succeeded M. Léonard Beaudouin as professor of the History of Architecture in the Ecole Polytechnique. In the late sixties he commenced the study of Lombardic and Romanesque-Byzantine architecture in the North of Italy, and published in 1885 a magnificent work on the subject, illustrated from his own drawings and etchings.

The Petersfield Urban District Council have instructed Mr. Henry W. Taylor, A.M.I.C.E. (Messrs. Taylors and Walling, Newcastle-upon-Tyne and Birmingham), to report upon improvements of the existing main sewerage of the town.

On retirement from the staff of the Metropolitan Water Board on pension, Mr. Ernest Collins, the district engineer of the New River district, and previously for many years one of the chief engineers of the New River Company, has been promoted by his colleagues with a silver service as a mark of their regard.

Sir J. Wolfe Barry has presented the Chief Commissioner of Works with copies of seven water colour drawings by George Moore, depicting various aspects of St. Stephen's Hall and Chapel before the Houses of Parliament were burnt down. Lord Mayor's Court has drawings hung in a lobby in St. Stephen's Hall, an appropriate place.

At the laying of the foundation-stone of the new County Hall for London, the King was presented by Mr. Ralph Knott, the architect, with a silver bowl, specially made by students of the Council's Central School of Arts and Crafts. His Majesty afterwards conferred knighthoods on the Chairman of the Council, Mr. Edward White, and its chief engineer, Mr. Maurice Fitzmaurice, C.M.G.

It was reported to the London County Council on Tuesday, that about the year 1900 the portions of the Highgate railway viaduct which are situated in the borough of Hornsey have been sold to the Middlesex County Council at an agreed-on price of £6,675 10s. They will still be worked by the L.C.C. and a contract, on a thirty years lease at £557 3s. 3d. It was also reported that the reconstruction of the bridge near Clapham Junction on the Wandsworth-road to Epsom-hill route, carrying St. John's Road over the line of the Brighton and South Western Railway Companies, had been completed at a net cost of £3,471 10s.

The chairman of the Calcutta Improvement Trust invites applications for the permanent positions of chief engineer on a salary of Rs.2,000 per annum, rising to Rs.2,500, and a local valuer on a salary of Rs.1,000 per annum, rising to Rs.1,500. The principal duties of the local valuer will be to value properties which the trust proposes to acquire, and to defend the value adopted by the trust in all subsequent proceedings. The duties of the chief engineer will be to frame and execute improvement schemes, whereby new thoroughfares will be driven through the congested quarters of Calcutta and the laying out of new colonies. Applications must be sent in by April 15 next, and closed on May 15. Mr. C. H. Bompas, 5, Abchurch-lane, London, E.C.4.

Correspondence.

EAST SUSSEX HOSPITAL.

To the Editor of the BUILDING NEWS.

SIR.—Referring to your notice concerning this competition, I send you herewith a copy of a letter I have addressed to the *Hospital*, which will probably be published in this week's issue.—Yours faithfully,

A SAXON SNELL.

22, Southamption buildings, Chancery Lane, London, W.C., March 12.

(copy.)

EAST SUSSEX HOSPITAL.

The Editor of the *Hospital*.

SIR.—You have been good enough to forward me a marked copy of last week's issue of the *Hospital*, in which attention is particularly drawn to some criticisms upon the award of the competition, and reasons upon the system of judging generally.

The jury system, which appears so desirable to you, has been under consideration for many years by architects who are most intimately concerned in the matter. It has also been tried on more than one notable occasion, but the results have scarcely been so satisfactory as to recommend it.

The award of the competition is open to grave objection, although it must be acknowledged that it has some redeeming features. I venture to think, however, the plan and some of the points of the question, such as this, is scarcely likely to be of interest to the majority of your readers. Neither is it necessary to trespass upon the space you may be good enough to allow me to demand point by point with your correspondents' criticisms, which are so easy to make. They will be convincing to no one but such of your readers as are competitors who lack the instinct of true sportsmen.

I except one point, which, if left uncontradicted, may receive a certain amount of general credence. It is such a common grievance in competitions. Your correspondents respectively state that—

"The committee had the sum of £3,000 (roughly £350 per bed) as the total cost for an up-to-date hospital," and "the cost was stipulated as being essential in the selection, £3,000 being the sum the committee would have available."

The best answer to these misleading statements is to quote the actual Condition, which was as follows, viz.—

"The committee think that £3,000 is the maximum that they will have at their disposal for the whole hospital, and, while they require the hospital to be up-to-date, they do not intend to award a prize to a design within that sum, if possible; but competitors must use their discretion in designing if they think that amount insufficient."

No honest reader of this clause suggests that the question of cost was essential.

For the rest, no good award is ever made in consideration of one or two points, but on a general survey of the design from the point of view of its other worth, the best design is that which combines the greatest number of good points and the least number of errors. The jury of the competition who has given many hours to the study of the plans must be a better judge than your anonymous F.R.I.B.A. By the way, it would be interesting to have their names, and especially to know if either of them competed.

The assessors' character and his work as a hospital architect are too well known to be questioned, and your correspondents' criticisms will probably cause him more amusement than annoyance.

I should like to take the opportunity of correcting a wrong impression, somewhat of an impression. The authors of the successful design are my brother, Mr. John Saxon Snell, and Mr. Stanley M. Spoor, sometime my pupils at your building school.

Of the merits of their design it does not become me to speak, but I think no unprejudiced critic will dispute its general excellence.—Yours faithfully,

(Signed) A. SAXON SNELL.

On retirement from the post of clerk of the works at St. Paul's Cathedral, the Dean and Chapter have granted Mr. E. Harding a pension in recognition of his "loyal and faithful services," extending over a period of thirty-five years.

The church of Little St. Mary, in the Lincolnshire Fens, is in a state of extreme disrepair and dilapidation, and the restoration is supported by grant. The most economical estimate for "urgent" work forecasts an expense of £1,150. The architect for the restoration is Mr. Wilfrid Bond, of Grantham.

Mr. G. Malet, M.Inst.C.E., held in honour at Dundee on Saturday the 10th inst., a competition for the sanction to borrow sums of £520, £900, and £323, for the purpose of delaying the cost of widening and improving Dundee North Bridge, from plans prepared by Mr. C. S. Morris of Northampton, and the successful design was built in 1571, and partly rebuilt in 1833. It is 570yds. long, and the scheme is to provide a roadway 36ft. throughout, to open the flood arch, and to widen the navigation at high

remitting the proposal back to the committee for reconsideration. The following were the winners of the Institute prizes in the Glasgow School of Architecture, viz.: R. Norman McKellar, for design, £3 3s.; William Gourlay, for freehand drawing, £2 2s.; and John M. Venters, for measured work, £2 2s. The ninth triennial competition for the Alexander Thomson Memorial Studentship was held in February, the subject being a design for a bridge with a span of 100 ft. The number of competitors was disappointing, only three sets of drawings being received. The studentship, value £50, was awarded to Mr. James Bennett, Ayr; but, in view of the small number of competitors and the fact that the quality of the work was not up to the standard which the trustees desired, they decided not to award the second prize in this competition. The chairman proposed the adoption of the report of the referees, the recently instituted Licentiate section of the Royal Institute of British Architects, and said he was pleased to say that the response from their province had been very gratifying, and that, from what he personally saw during his term upon the Royal Institute Council, not only in numbers had the Glasgow province been equal to any section of the kingdom, but in quality also. He referred also to the large and rapidly increasing number of municipal building work emanating from the city engineer's office. At present the art galleries, the rebuilding of the historic Tontine, and the extension of the municipal buildings work all calling for high architectural skill—was being, and proposed to be, designed and controlled from an "engineers' department."

Not only as ratepayers, in the city's interest, but as architects, proud of the architectural reputation of their city, they desired to show that the skill of the past had not departed, and that their public buildings should be worthy of them and of the city to which they were proud to belong. Referring to the new regulations for competitions, he said these had been adopted by the Institute and homologated by the Royal Institute of British Architects, and he trusted such public bodies, committees, or individuals who were proposing competitions would recognize that their desire was not to be antagonistic, but helpful. Mr. Alexander N. Peterson seconded the report and financial statement, which were adopted. The council for the ensuing year were elected as follows:—Messrs. John E. Wilson, John Watson, J. K. Hunter, Alexander N. Peterson, W. G. Rowan, John Fairweather, Charles R. Mackintosh, Richard G. Lewis, James Leitchhead, James M. Monro, George A. Paterson, Alexander McGibbon, Ninian Macwhannell, James Lindsay, James H. Craigie, William B. White, Alan G. MacNaughtan, and Alexander Wright. The retiring president was heartily thanked for his services in promoting the interests of the Institute.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general meeting of the society was held on March 7 at the Leeds Institute, the president, Mr. Sydney D. Kilson, M.A., F.R.I.B.A., in the chair. A very interesting lecture on "The Scottish Renaissance Architecture" was given by Mr. Laurence B. Marshall, a series of slides showing plans of houses and castles illustrated the fact that the towers formed their keynote, unlike the English plan, which developed from the hall. It was pointed out that the Scottish Renaissance was entirely based on French influence, owing to the political connection between the two countries, whereas in England the influence of Italy and the Netherlands was general. The Scotch Renaissance was much later than the English, and the tenacity of the old "Baronial" style is remarkable. Many fine slides were shown illustrating picturesque exterior and gardens. Illustrations of interiors included many fine plaster ceilings and painted ceilings, fireplaces, staircases, and screens. A vote of thanks was passed on the motion of Mr. G. F. Bonman, and seconded by Mr. J. Smith Findlay.

NORTHERN ARCHITECTURAL ASSOCIATION.—The fifth meeting of the session of the Northern Architectural Association was held last night at 6, Higham-place, Newcastle. Mr. H. C. Charlewood, president, occupied the chair. The assessors' awards in connection with the students' prize competitions were announced as follows:—Measured drawings (age limit 25 years): W. Holden, London, £2 2s. Measured drawings (age limit 21 years): H. St. Harrison, Newcastle, £2 2s. Architectural sketches (age limit 25 years): S. W. Milburn, Sunderland, £2 2s. Architectural sketches (age limit 21 years): H. St. Harrison, Newcastle. Travelling studentship (medal and 10 guineas): Albert Lowe, Newcastle; second, S. W. Milburn, £2 2s. Designs for pavilion in an Italian garden: K. Glass, Newcastle, £2 2s.; K. Glover, Shotley Bridge, £1 1s. The subsequent proceedings were of a social character.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Mr. Edwin T. Hall (F.R.I.B.A.) read a paper on "The Museums and Picture Galleries" at the General Meeting of the Royal Institute, fixed for April 1. The illustrations will include a fine collection of slides specially prepared for the paper. Mr. Hall's paper is in substitution of that on "Modern Methods of Construction," which Mr. Dunn is unable to read.—The discussion of the papers on "The Newer Responsibilities of Architects" admitted from the meeting of December last, will be resumed at an extraordinary (ordinary) meeting of the Institute to be held on Monday, April 15, when a further paper on the subject will be read by Mr. A. Saxon Snell, F.R.I.B.A.

SMOKE ABATEMENT CONFERENCE.—Particulars have now been issued of the arrangements for the conferences of delegates of municipal authorities and other bodies to be held at the Royal Agricultural Hall in connection with the International Smoke Abatement Exhibition. The conferences will take place on the 26th, 27th, and 28th inst. the respective chairmen being Sir William Ramsay, F.R.S. (President, British Association), Sir William Richmond, R.A., and Lord Justice Fletcher Moulton. The conferences are divided into three sections, to consider:—(a) Smoke pollution and its effects; (b) Smoke abatement; and (c) Law and Legislation. Among the papers to be considered are those on "The Action of Cold Smoke on Building Stones and Mural Paintings" (Sir Arthur Church, F.R.S.); "The Effects of Town Air on Metalwork" (Dr. S. Rideal); "The Economic Aspect of Smoke Abatement" (Dr. R. Lessing); "Influence of Smoke on Pigments" (Mr. Noel Heaton); "Smoke Records" (Mr. R. G. Lempert, Superintendent Forecast Division of the Meteorological Office); "Kew Gardens and Smoke" (Mr. W. J. Bean, Assistant Curator, Kew Gardens); "Should the Domestic Smoke Nuisance be any Longer Tolerated?" (Bailie W. Smith, Glasgow); "Progress of the Smoke Abatement Movement in Germany" (Herr Eugenius Niesl); "The Smoke Problem in the United States of America" (Mr. Z. A. Willard, Boston); "Stoking" (Commander W. F. Caborne, C.P. R.N.R.); "Smoke Abatement Laws in Other Countries" (Mr. Julian Corbett); "Is Further Legislation Necessary?" (Mr. J. Joseph Hurst, barrister-at-law); "The Proposed Smoke Abatement Bill" (Principal J. W. Graham); "A Plea for the Appointment of a Royal Commission" (Dr. Des Voeux, treasurer, Civil Smoke Abatement Society). Special lectures are also being organised on the different phases of the smoke abatement movement.

The Sunderland Tramways Committee has decided to recommend to the town council that the salary of Mr. A. R. Dawson, tramways manager, be increased from £500 to £500 per year in instalments of £25 per annum.

Prince Victoria of Schleswig-Holstein opened on Saturday the institute and mission known as St. Saviour's House, in Union-street, Borough. The building was designed by Mr. Danby Smith, and the total cost, including furnishing, has been £3,600.

LEGAL INTELLIGENCE.

AN EDINBURGH AMENITY QUESTION.—The Corporation of Edinburgh v. The Lord Advocate. In the Inner House of the Scottish Court of Session on the 7th inst., judgment was given by Lord Ormrod in the action by the Corporation of Edinburgh against the Lord Advocate, as defender, which was brought by Messrs. J. & W. F. Works and Public Buildings, for declarator that the defenders have no right or title to erect houses or buildings on a portion of the Royal Botanic Garden, and Inverleith, at a distance of 30ft. from the centre line of the street, or to erect houses, walls, or other buildings above 7ft. high there, within a distance of 25ft. from the centre of Inverleith row, without the consent of the pursuers. The pursuers sought to prevent the defenders making any such erection. The pursuers stated that in 1910 the Commissioners erected a two-story building, fronting and extending 52ft. along Inverleith row, and within 20ft. of the centre of the street. On account of the projection which it formed beyond the building-line of the street, it had given rise to feelings of indignation on the part of the public. The defenders now proposed to erect buildings of five stories along Inverleith row, the main building 36ft. in frontage of the Botanic Gardens to Inverleith row. The pursuers pleaded that the portion of the gardens being ground to which Section 67 of the Edinburgh Corporation Act applied, and Inverleith row being a turnpike road, they were entitled to the declarator and the interdict sought. The Commissioners pleaded that under Section 78 of the 1905 Act their property was exempted as well as at common law, hence the property was exempted. They denied that the building erected in 1910 projected beyond the building line. Although not bound to do so by statute or at common law, the Commissioners presented a petition to the Dean of Guild's Court and warranted the building erected. Lord Ormrod could not give to the Dean of Guild's order the effect of a judgment ascertaining and determining the rights of parties. The court of session, the defenders founded on Section 78 raised a difficult question, but what was exempted was not all Crown property, but every building, structure, or work vested in or in the occupation of His Majesty. His Majesty did not warrant the building warranted in reading into the section the words "or which will be vested." It was to be regretted that the defenders should not be allowed to erect the buildings in question, for they were really an extension of existing buildings, and were themselves built within the thirty-feet limit, and it was difficult to understand in what way the public interest would be affected by the erection of the extended buildings.

WATER SUPPLY AND SANITARY MATTERS.

LUDLOW NEW WATER SUPPLY.—The new water supply to the borough was inaugurated on Thursday last week by the Earl of Liverpool. Last year there was a suspicion the water supply was contaminated. The corporation then leased from the Earl of Plymouth various meadows in the catchment area, and 9in. steel pipes have been put in place of the glazed earthenware pipes.

Further substantial purchases of property for the purpose of street improvements are recommended by the street improvement committee of the Bradford City Council. The schemes include the acquisition of the three hills-road, £3,393 in Sagarate and Northcliffe-lane, Thornton; £231 at Fazley-road, and £194 at Tong Lane End. It is also proposed to extend Dalm Mill at a cost of £18,000.

The London and Clavering Rural District Councils have been met to consider the proposed new road from Birch St. Peter to Lowestoft. The total cost of the work is estimated at £2,600. One mile and a third will be in their district, and £116 had been apportioned for that. The scheme has been approved, and they are willing to sell at a reasonable price, and to contribute towards the cost of the work besides.

Major Norton, R.E., on behalf of the Local Government Board, held an inquiry at the urban sanitary council offices, Nantwich, on Wednesday week with reference to the council's application to borrow £1,075 to cover the cost of the purchase of an additional 17 acres of land in connection with their Windy Arbour sewerage scheme. The application was supported by Mr. A. E. Whittingham, clerk, and Mr. W. F. Newey, surveyor and engineer to the council, and Mr. Baldwin Latham, consulting engineer to the council. It is proposed to use the land for the purposes of bread irrigation.

Our Office Table.

The London County Council asked the Local Government Board in December to initiate legislation to secure the exemption from rating of underground sewers. The Local Government Board replied on February 9 that it was doubtful whether there was at the present time any prospect of legislation on the subject. The Local Government Committee, regarding the answer as unsatisfactory, recommended the Council to ask the principal provincial local government authorities, who are also drainage authorities, to co-operate in endeavouring to secure the exemption of underground sewers from rating. The matter is one of considerable importance to London, as further inequalities in rating would be produced if the sewers were rated, and it is held by the committee that the benefit to the ratepayer would, speaking generally, be negligible. "The only direction," the report runs, "in which it is certain that benefits will accrue is in the case of the Imperial Exchequer, which will be entitled to demand from local authorities Income tax on additional assessments; thus the taxpayers will be relieved at the expense of the ratepayers at a time when the latter were pressing for increased grants in aid of rates."

In the Legislative Council at Calcutta on Friday, Sir S. Harcourt Butler opposed Mr. Mudholkar's motion to abolish the office of Director-General of Archaeology, and said that the Government was resolutely determined to carry forward Lord Curzon's archaeological work. The charges made against the Government of India and England were entirely groundless. It showed grave misunderstanding of important matters of fact. The Government of India contemplated increased expenditure, an increased establishment, an improvement in the production and circulation of publications, and especially the training of Indians for research and other work. Part of the charges against the Government of India in the General in the Research Institute, which had been enthusiastically received in India. The resolution was withdrawn.

The Guildhall Museum has just been enriched by the addition of two panel pictures, each made up of sixty-six Dutch tiles. These panels, with three others that have gone to the South Kensington Museum, have lately adorned a pantry at Messrs. Dunn and Vallenin's Distillery, opposite St. Mary's parish church, Lambeth; but many years ago they were, it is believed, the collection of Horace Walpole at Strawberry Hill, Twickenham. The demolition of the distillery has necessitated their removal. One of the panels at the Guildhall depicts a landscape, with sparrows flying over peasants, in the Dutch style. The other shows a vase of flowers, with drapery and birds. The tiles, which are without a flaw, are believed to have been made about 1690.

The revised route of the proposed new road between Birmingham and Wolverhampton received on Thursday week the approval of the Association of Midland Local Authorities as a scheme to be commended to the support of the Government Road Board. The two principal existing roads between Birmingham and Wolverhampton are on the north-east of the railway, and are more or less circuitous. The route now proposed starts at the Beech-lane, nearly opposite the Padden-road, the latter forming a small section of Mr. H. E. Stiles's proposed "Ring Road" round Birmingham. It is then to run northwards beyond the Warley Golf Links, and then more westerly, between Warley, Salop, and Cakemore, crossing the Stratford railway near Cansway Green. Thence, it runs by-passes to the left of Oldbury and to the right of Dudley, crossing the present Birmingham Dudley Road near where it joins the road from Great Bridge. Tipton is the next point, and then bending to the north, through part of Cosley, the road will join the Sedgley Wolverhampton Road (Dudley Road), a little before the latter arrives at Blakenhall, the most southern

suburb of Wolverhampton. The length of the proposed road is nine miles and a third, and with the exception of a few small sections it would be entirely new. The suggested width is 100ft.,—the width suggested for the Birmingham "Ring Road," the cost of construction, exclusive of land, being estimated at £120,000.

The sixty-third annual report of the Prudential Assurance Company, Ltd., for the year ending December 31, 1911, states that in the Ordinary Branch the number of policies issued during the year was 69,912, assuring the sum of £5,396,721, and procuring a new annual premium income of £325,682. The premiums received during the year were £1,812,268, being an increase of £6,117 over the year 1910. In the Industrial Branch the premiums received during the year were £7,631,408, being an increase of £296,691. The assets of the company, in both branches, as shown in the balance sheet, after deducting the amount written off securities, are £81,238,682, being an increase of £3,710,456 over those of 1910. In the Ordinary Branch the surplus shown is £1,788,357, including the sum of £334,311 brought forward from last year. Out of this surplus the directors have added £250,000 to the investment reserve fund, which, after deducting the £175,000 written off value of securities, stands as at December 31, 1911, at £850,000. In the Industrial Branch the surplus shown is £1,681,351, including the sum of £506,300 brought forward from last year. Out of this surplus the directors have added £250,000 to the investments reserve fund, which, after deducting the £200,000 written off value of securities, stands as at December 31, 1911, at £650,000. The total surplus of the two branches, as shown by the valuation, is thus £3,169,908. The directors announce an increase in the rate of bonus of both branches of the company, as follows: In the Ordinary Branch a reversionary bonus at the rate of £1 16s. per cent. on the original sum assured has been added to all classes of participating policies issued since the year 1878. This is an increase of two shillings per cent. over the rate declared for the past two years. In the Industrial Branch bonus additions will be made to the sums assured on all policies of over five years' duration which become claims either by death or maturity of endowment from March 8, 1912. March 6, 1913, both dates inclusive, ranging from five to fifty per cent.

TRADE NOTES.

Claridge's Patent Asphalte Co. Ltd., announce that they have now been connected to the telephone service, No. 8586 City.

Under the direction of Mr. A. V. Gardner, architect, 104, Euston-street, Glasgow, Boyle's latest patent "air-pump" ventilator has been applied to the new picture theatre, Smith-street, Glasgow.

Mr. H. Guichard, T. J. F. S.A., (Scott.) M.S.A., architect and surveyor, has removed to Southampton House, 11, High-street, London, W.C., 2, Chancery-lane, London, E.C. His telephone number is Holborn, 627.

The Catholic Cathedral Schools, Plymouth, are being supplied with Sheridan's warm air ventilating patent Manchester Grates and inlet ventilators by Messrs. F. H. Shoreland and Brother, Ltd., of Fallowfield, Manchester.

Mr. T. W. Haigh, architect and surveyor, 2, Euston-street, Euston, London, N.W., held the partnership licence existing between him and Mr. Ernest S. Thompson at that address has been dissolved as from November 21 last. Mr. Thompson retires from the practice, which will in future be carried on by Mr. T. W. Haigh under his own name.

The well-known joinery works of Messrs. Samuel Elliott and Sons, Limited, Evesham, Reading, have been carried on for the last three or four months by the Receiver and the firm, and we understand that the large staff of skilled workmen have been kept working in order to cope with the orders in hand. We are requested by the Receiver to state that he is prepared to enter into negotiations for the amalgamation of the business of the concern, and could probably arrange to finance a considerable portion of the purchase price. Inquire should be addressed to the Receiver, Mr. Sydney W. Talbot, F.C.A., 28 Basinghall-street, E.C.





THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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THE PLANNING OF AMERICAN SUBURBAN RESIDENCES.

By GEORGE ASHDOWN AUBSLEY, LL.D.

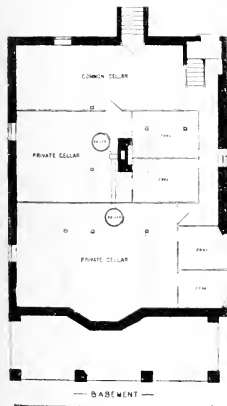
As may be gathered from the title, I confine my remarks to the planning or interior arrangement of suburban residences, leaving the vexed question of exterior design untouched. This is desirable, simply because the materials used, as a general rule, in the United States for such suburban dwellings as I shall allude to, are widely different from those universally employed in this country. Within what is

houses having a somewhat dignified and well-to-do villa appearance, but which can be inhabited by small families, that desire to live in a good neighbourhood, and can only afford the wise and very satisfactory practice of constructing what is known as the "two-family house." The two residences so combined under one roof, would, if built separately, not only occupy more valuable ground, but would cost more, and end in producing a mean appearance—all matters deserving careful consideration.

So far as the planning of external features is concerned, the veranda is the most important and noteworthy adjunct to the general type of American villas. This is universally and, of course, incorrectly, designated by American architects the "piazza." This feature, which is so necessary in the summer and autumn climate of the States, has long been what may be called an architectural exercise on the majority of suburban and country residences, but is now very frequently treated as an outdoor room, in strict keeping and subordination to the general design. In the majority of cases in villas of moderate dimensions, although sometimes in large country houses, the veranda appears as a narrow, covered platform or gallery extending along their façades. Where space is sufficient, a locality is frequently found for it at one or both ends of the chief front, its lines being employed either to prolong those of the main building, or to vary them in a more or less artistic manner. In many instances, these veranda-rooms, so to speak, are provided with wire screens, put around them during the prevalences of mis-squalls, and with glazed screens, which are fixed during the winter and early spring months, provision being made for their connection with the general heating system of the house. These external rooms are furnished with lounge chairs at all times, and during the cold season are covered with carpets or rugs, more fully furnished, and properly lighted. They invariably open from the principal reception-rooms. The veranda, either in its single open, or more varied form, would be a very welcome addition to an English suburban or country residence, and, perhaps, some day it will make its appearance when our builders wake up to the desirability of considering the indoor and outdoor comfort of their tenants. In the accompanying Ground Plan the very usual position and general treatment of the covered veranda are shown. It is constructed entirely of wood, and is approached by six steps, indicating a height of 3ft. 6in. above the ground level. Its covering, comprising its ceiling and the floor of the upper veranda, is supported on

columns, as indicated. Between the columns an open railing is carried, about 2ft. 9in. high, which is formed in a great variety of ways in houses of different styles of architecture. When the veranda is prepared specially for screening, the railing is usually made solid. The floor is of wood, very closely laid, and well painted with specially-prepared floor paint; it has a slight fall toward the front, so as to throw off any water that may fall upon it.

Verandas, either covered or uncovered, are frequently added to the first floor of large houses, either opening from the more important bedrooms, or from an upper hall



defined as the "fire-limits" in cities and towns, wooden buildings are no longer allowed to be erected; but beyond these, and in suburban districts and villages, they are still constructed in large numbers; this is especially the case in the State of New Jersey. The plans accompanying this article are those of two houses I erected in Arlington, a suburb of the City of Newark. Villages or suburban districts, composed for the most part of wooden houses, in many cases tastefully designed in various styles, brightly painted, and arranged, detached, along avenues or wide roads, with good "parkings" or well-kept gardens in front, have a very pleasant and comfortable appearance.

The desire to produce the satisfactory effects I have briefly sketched, and to erect

or passage, so as to be common to the whole house. In the case of a two-family residence, the upper veranda is a necessary adjunct, and this is commonly uncovered, as that shown in the accompanying First Floor Plan. In this house, the floor of the upper veranda is covered with tin-plate, in the usual American fashion, and then floored with wood in such a manner as to allow rain-water to drain off. Between the edges of the boards, to the tin surface below. An ornamental railing is carried around the open sides of the veranda, corresponding to that on the ground floor.

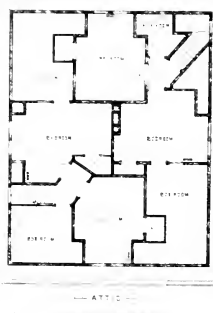
As a general rule, and indeed, in practically all cases where the nature of the ground permits, American dwelling-houses are provided with good basements or cellars. In a house of moderate dimensions

the floor extends uniformly through out the space within its external walls, in the manner illustrated in the Basement Plan. Apart from affording complete collapse, coal stoves, etc., the basement is fitted with everything required for the heating of the main house above. The manner of heating this is the hot air system is illustrated in the plans. Given in my Article in the *Specimen of Feb. 16 last*. In the Basement Plan here given, two boilers are indicated for each family residence furnishing the system of steam heating provided in this instance by the client; but it is probable some could have been used with more desirable results, doing away with the very objectionable standing radiators, which go far to disfigure every room and to cause air vortices in the ways. A private flue is given to each residence, partitioned with wall to the height of 6 ft. 6 in. from the floor, the space between these partitions and the floor above providing perfect ventilation. The radiators are so placed that they can be filled by means of a pipe passing through the ceiling window directly to the roof. The exhaust of the wind was arranged at top, and made to blow when required. The basement is entered directly from the exterior, and also from both residences by the back staircase. The basement is kept free of all obstructions by the use of small cast-iron columns and string beams for the support of all floors, partitions, etc. The general arrangement shown is a representative of a basement of a two-family house of about size. In designing a two-family house, it is generally assumed to give the exterior the appearance of a somewhat dignified villa, without any special evidence of its being two residences under one roof. Accordingly, it must display a single front porch or entrance door; the necessary separation being made within. The experience of a lower and upper veranda is not necessarily indicative of double residence, for many single-family residences have the two verandas. The manner in which the single entrance of rowy and porch with the separate stairs to the lower and upper verandas are conveniently arranged is shown in the Ground Plan. The front doors are flanked with heavily pilastered columns, while the inner doors have their upper panels filled with ornamental glass that cannot be seen through. The doors of the porches laid with mosaic or ornamental tiles, and its walls have a coat of some expensive native marble. The columns and their accompanying wall work are usually of dark

[illegible]

The kitchen is conveniently placed with respect to the dining-room, the desirable factor's pantry only separating them. The latter is fitted up with cupboards, drawers, and sink and is warmed by a small

radiator. Swings-doors are hung between the dining-room and kitchen and the butler's pantry, being unquestionably the most convenient for the servant in passing to and fro while serving. The kitchen is furnished with a stone-ware sink, and two washing-tubs, forming a very bad



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artificial stone called "albarino"; these have chamois-hinged covers which form a convenient table when shut down. Between the kitchen and the back entrance hall is an intermediate vestibule in which is placed a properly-chained ice-box and refrigerator, an absolute necessity in every American house, and which should be introduced in every English one of any pretensions to comfort and convenience. The back staircase communicates with the basement previously described, and with



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the portion of the attic apportioned to this lower residence, while it also provides the kitchen entrance to the upper residence. This staircase is protected by the single outside entrance-door.

Adjoining the kitchen, and opening from the passage, is a linen-closet, fitted with drawers and presses, and having a borrowed light from the kitchen.

The bedroom opposite the kitchen, and opening from the passage, is most conveniently furnished with a closet on one side, and a large wardrobe on the other.

The latter can be used for garments out of season, or not commonly used, while the other closet is for daily use. A radiator is placed in one corner of the room, as indicated. Both the other bedrooms are furnished with closets of good size, and are heated by radiators. The bathroom is fully fitted with a vitreous-ware bath, an wash-basin and a silent, low-down-tank w.c., as at Paris.

A glance at the plan will convince anyone familiar with house-keeping problems that comfort and convenience constitute the keynote of its arrangement. It will be seen that on this floor alone there are no fewer than six closets, all located where they are most required, and without interfering with the general arrangement of the rooms. The addition of the closets in the bedrooms simplify their furnishing, rendering expensive and lumbering wardrobes altogether unnecessary; they are fitted up with the necessary shelves above, and drawers and dress-hooks in convenient positions.

The attic accumulation belonging to this residence is described later on, along with that appertained to the upper residence.

The left-hand entrance or in the porch opens on to a staircase which leads directly to a small hall on the first floor. Here a coat-closet is provided, and an adjoining veranda gives access to the upper uncovered veranda, which has been already alluded to. The other door opens into the parlour of this upper residence in the same manner as that of the residence below. The staircase and hall are well lighted and warmed.

The arrangement of this residence is almost identical with that already described. The only difference is in the kitchen, which will be shown on referring to the First Floor Plan, that the only difference obtains in the absence of the large wardrobe in the bedroom opposite the kitchen. There are, accordingly, only five closets in this upper residence. Under these circumstances, a description of this residence is quite unnecessary. I must, however, just mention the absolute necessity of so constructing and deafening its entire floor as to cause no annoyance, by undesirable noise, to those in the residence below. Different systems of deafening are resorted to; but, perhaps, that in which a thick, quilted fabric, containing a close layer of glass-wool or saw-wood, is suspended just to joists is the most efficacious. When this is properly placed, and tacked to the upper edge of the joists, wide boards, commonly of hemlock or fir, are laid diagonally and securely nailed, through the deafening, to the joists. This rough flooring remains uncovered until all the lathing and plastering are executed, the windows are inserted, and other rough work has been finished. Then, when all rubbish has been removed from the rough flooring, a thick paper, a thin hair felt, or asbestos cloth is laid over it, and the final flooring is laid and securely nailed down. This final flooring is very commonly of maple boards, 2 in. thick, an 12 in. exposed width, grooved and tongue on one side-nailed. Combination pine or maple is also used, and treated in a similar manner. By the treatment described, a very satisfactory floor is the result, as the practical man can readily realize.

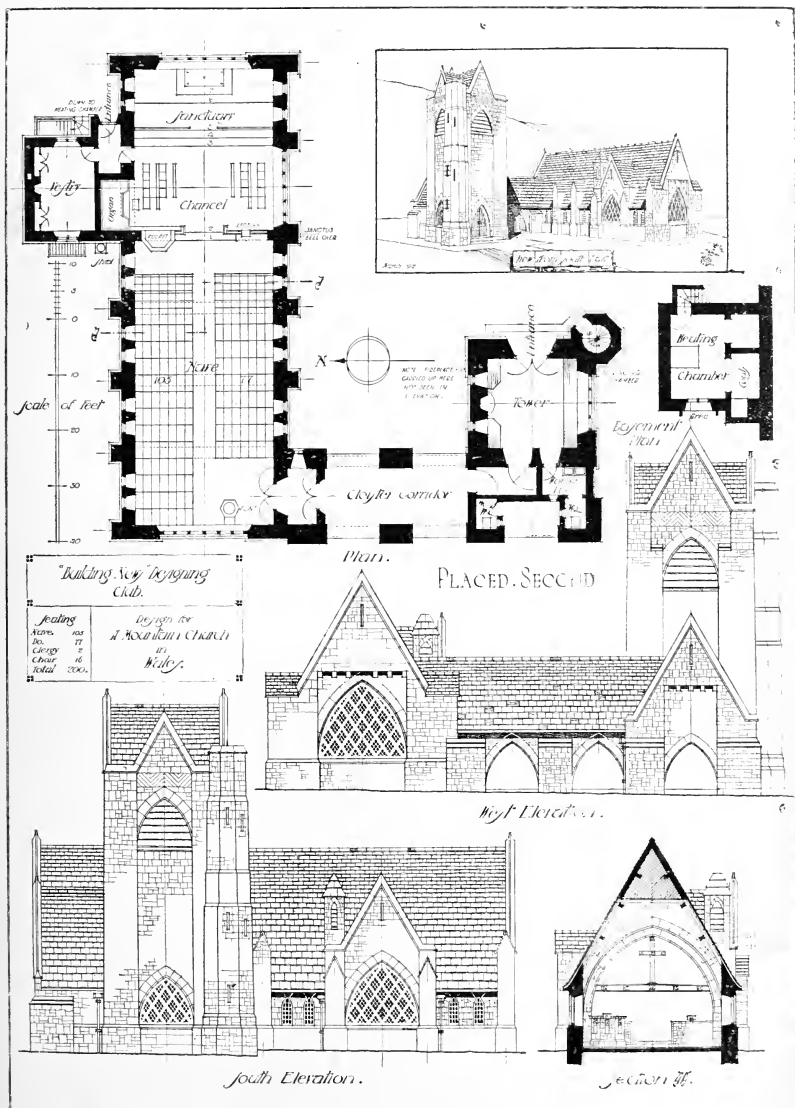
The Attie Plan now claims attention. Here again one observes every care taken to secure the maximum amount of convenience. In the first place, its floor-space is equally divided between the two residences below, and each division is reached by its own staircase. Each division comprises two good bedrooms, properly fitted with closets, and as well warmed with radiators as any of the lower rooms, and amply lighted by large dormer

able here and there in the provinces almost to the end of the century. But long before the death of Louis XIII., in 1643, a different spirit had begun to come over architecture. Works on the orders and the theory of design again began to appear. Men who had taken refuge in Italy returned, and younger ones resumed the practice of going there. The first quarter of the 17th century produced one architect of great talent in Simon de Brosse. As a grandson of Jacques du Cerceau and nephew of the latter's two sons, who were all architects in the royal academy, he inherited a high tradition of design, and was well fitted by his training, as well as by his position as First Architect to the Crown, to sum up in monumental works all that was best in current methods, and add to them a touch of classical dignity. De Brosse was a little heavy, a little uninspired, a little uncertain, even when at his best. But the Classicising tendency, the first symptoms of which reappeared in his work, was maintained throughout the succeeding period from 1624 to 1661, which coincides with the reign of Louis XIII. and the Cardinal Ministers, Richelieu and Mazarin. The great successor of De Brosse was François Mansart, possibly his pupil. Other eminent architects of this period were Antoine La Pautre and Louis Le Vau. Le Vau's work, while never reaching the supreme accomplishment of François Mansart, is always dignified, and often goes with some degree of imagination. By a return to the giant order, almost abandoned for half a century, and now sometimes used in combination with smaller orders, he illustrates at once the renewed influence of the Italians and the growing trend of the age towards the grandiose. Up to the "sixties" the chief glories of 17th-century architecture are the sumptuous mansions in town and country. The next thirty gave birth to Versailles and the Invalides, to splendid palaces and pompous monuments, built at the public expense. The change, too, is symbolised in the very character of the architecture. Before, we have multiplicity; after, unity. Before, great buildings are broken up into pavilions and galleries, with roofs of varying height and important domes; after, single orders prevail; after, we have single unbroken masses, continuous or concealed, and balustraded roofs and colossal orders. The advent of Perrini among the French architects in 1695 to design the east front of the Louvre was the touch needed from outside to precipitate the transformation towards the final things to be seen in Perrini's design, whatever its defects, and it was certainly a fortunate escape for Paris that it was not carried out—had the merit of striking a single unmistakable note; with its bold, almost unbroken, cubic mass, its gigantic order and cornice, it proclaimed itself unmistakably the palace of a sovereign of irresistible power, and it was the aim of architecture was in all respects to gain is open to question. Perrini had expressed the idea of the age in brutal terms of Baroque art. It was reserved for Claude Perrault to translate it into the suaver language of a Classicism more congenial to the French taste of the day. The stage which Classical architecture in France had reached after a century and a half of experiment now crystallised, and was perpetuated till the Revolutionary era by the precept and example of the Academy of Architecture founded at this time under Royal auspices. This stage may be described as a kind of Palladianism, based on study of the antique, and of the Italian renaissance, but not so; but it did not demand slavish or pedantic imitation. Its chief spokesman was the elder François Blondin, the architect of the Porte St. Denis, and its chief exponent Jules Hardouin Mansart. This Jules Hardouin Mansart, great-nephew of François Mansart, who succeeded to the post of architect to all the kings of France after the death in 1670, was wholly of the new way of thinking. At Versailles he was handicapped from the start, and his efforts to redeem the scale were doomed to at least partial failure. Le Brun died in 1690, but his influence had been before that, and a lighter, more playful manner had begun to be visible in the works of Bérain and other contemporary

designers. J. H. Mansart himself began to modify the solemnity of the interiors he designed. Louis's own rooms, remodelled about 1690, are decorated in a noticeably less emphatic manner than the State reception suite. In 1715 the old king died unmolested, and was buried almost unmolested to his grave. The western suburbs began to be covered with a host of new "biens" built by the fashionable architects of the day, among whom were Robert de Cotte, Mansart's son-in-law and partner; Cailleteau, his assistant; and Jacques Jules Gabriel, his relative and subordinate in the Royal works. The architecture of the first half of the 18th century maintains as a whole the massive monumental character and relatively pure Classicism of the late 17th. The new tendency of the correct official art of the Court and capital to relax its formality in the caprices of Bérain and Watteau was reinforced by another influence from Italy. Italian Barocco had consisted at first largely in breaking up and freely recombining in new connections the elements of Classical design, resorting to a certain decorative licence in the details of the portions. As the 17th century drew on, a type of design was evolved in which the whole effect was obtained by combinations and contrasts of flowing curves, both as regards plan and elevation, and in which definitely Classical elements had almost disappeared. It is to this phase that the term "Rococo" should be attached. In the work of Le Prieux had practically expired before this phase was reached, and when the new curvilinear, or Rococo, manner began to creep in, in the last years of the reign, as in the work of De Cotte and Oppenordt, its influence was almost entirely confined to internal decoration and a few external ornamental details. It is more than doubtful whether such compositions as those of Juste Aurèle Meissonnier, in which the architecture appears to be agitated by a violent seismic disturbance, were intended for anything more than paper fancies. In any case few, if any, buildings were erected in France that can be said to show a thorough-paced Rococo character. With few exceptions, the influence of the Louvre Colonnade is very apparent in all secular architecture, and in public buildings it is almost tyrannical. In interiors, however, the influence of the Rococo had free sway. This transitional stage is characteristic of the work of the Régence. But soon such relics of Classicism as orders and strongly marked cornices were to disappear, and the great horizontal lines, framed by the vertical sides of the panels—and particularly of horizontal ones, with all deep shadows and bold projections. Everything heavy and formal was eliminated. The Rococo movement was primarily one of reaction against a fashion which had been carried to excess, which could only please so long as it was used with moderation, and which in any case was of limited range, and suited only to peculiar circumstances. It gained force from the general spirit of learned inquiry which pervaded the 18th century and brought about researches into the architecture of Rome and Greece both in Europe and Asia. In 1733, in the decade when the Rococo phase of the reign was beginning, the architect of Lyons, who had worked in Rome under the painter and decorator Panini, won the first prize in a competition for a new front for the church of St. Sulpice in Paris. Not only did this design break entirely with the Jesuit type of front, which for over a century had been supreme in France, but it was conceived in a type of pure ancient Roman architecture, devoid of all elaboration or trimmings. Within the same decade at least two secular buildings arose which showed the same puristic tendencies. One was the Fontaine de Grenelle in Paris, erected in 1739 from the designs of the sculptor Edme Bouchardon, and the second was the Lycée at Lyons, begun in 1737 by the Lyonsese architect, Jacques Germain Soufflot. The new phase of style, which began to arise between 1730 and 1750, was practised concurrently with the old between 1750 and 1770, and reigned supreme during the twenty years which preceded the Revolution, has received the name of Louis XVI., who, however, did not come to

the throne till 1774. In addition to its tendency to reject Classical type and to a general abandonment of flow or severe geometrical forms, it is characterised by greater simplicity. Simplicity of expression was also the ideal aimed at by some contemporary writers, who considered architecture from the point of view rather than the traditional point of view, as well as all the exterior, returned to the rectilinear and rectangular. In some of the more formal examples decoration regained something of the virile character of the age of Louis XIII. and XIV. In architecture proper this virile character was the rule, and a difference from work of the 17th century lies principally in more refined detail and ornament, due partly to Greek influence. The movement did not become general till the conversion of the Royal architect, Jacques Ange Gabriel, which took place about 1750. Gabriel was destined to give it its most monumental and severe expression, without either the effeminacy which sometimes characterised the decorative details, or the rigidity from which the Pantheon, perhaps the greatest achievement of the age, is not altogether free. Few men have ever had greater opportunities than Gabriel, or been so well fitted to use them. He knew all the resources of traditional French design and used them with consummate success, obtaining the same brilliant massive effect as the 17th century had achieved, but without their bombast and occasional brutality. His manner recalls that of the younger Mansart, but betrays a more meditative, tranquil cast of thought. The twin palaces on the Place de la Concorde, the result of a competition; the Ecole Militaire in Paris, and the Palace of Compiegne, which he rebuilt, are among the noblest buildings of a public character in Europe. That the genius of Gabriel was a virile one is proved by the gem-like finish which he gave to the Royal caprice known as the Petit Trianon. In works of the school of Gabriel architecture seemed to have reached a stage of breadth and scholarship equal to the expression of the age, and the architect, as a human being, can be final. The so-called Empire style is a sort of Louis XVI., with the warmth and tenderness left out, but possessed of a certain delicacy and a somewhat stiff charm of its own. It is the last phase in the history of decoration which can claim the rank of a style, completely worked out and universally accepted throughout France.

Mr. F. J. W. Ward, F.R.S., in proposing a vote of thanks to Mr. Ward, said he found himself in very general accord with the lecturer. He could not agree with his assertion that no country outside of Italy made the teaching of the Renaissance in architecture so thoroughly her own as France, England certainly assimilated the spirit of the Renaissance, although not, perhaps, the letter, even more fully than did France. It was certain that French Renaissance architecture was, as Mr. Ward had contended, distinctive and characteristic. England did not assimilate French influences during the progress of the Renaissance movement so completely as did other countries, and the general character of the nations were, unfortunately, at daggers drawn. Scattered all over England one came across curious isolated instances of the employment of Italian architects of the Renaissance. One Renaissance feature that seemed traditional in France, and which long preceded the days of the elder Mansart, to whom the Renaissance was introduced, seemed to be the employment of the high pitched roof, so appropriate and natural where small sizes of tile and slate were adopted for covering them, and another marked French peculiarity was the relatively slight projection of the cornice, as contrasted with the deep, overhanging cornices rendered necessary by the heavy beams of the truss. He contended that French architects were not so happy as those of other countries in the use of brick as a building material, without admixture of stone for corbels and dressings; all their attempts at a brick treatment were dull and dismal in effect. He regretted that in Mr. Ward's selection of illustrations, for example, the small 17th and 18th century



DESIGN PLACED SECOND FOR A MOUNTAIN CHURCH IN WALES.

ECONOMICS OF PRACTICAL CONCRETE WORK. PLACING CONCRETE.

No concrete should be placed until it is definitely determined that the forms are correct and properly braced. It is cheaper to delay the work than to cut out work already done. Concrete should be placed as quickly as possible after mixing, and not be disturbed thereafter. The placing of concrete is one point where the material is exposed to the greatest extent. We take great care of a green brick wall, but do not hesitate to walk over and conduct operations over concrete which has not reached its final set, thereby destroying the surface of the concrete for all time. While this may not be serious in some cases, it is certainly not desirable in thin concrete slabs. Concrete is better placed by chutes than by wheelbarrows, cars, etc., for the reason that by chuting the material is constantly kept in the process of mixing until it is deposited in the work. With barrows or carts, the heavier particles settle to the bottom, and when the mixture is dumped into the work there is a separation. Chuting also allows the placing of the concrete with a minimum of working back and forth over the work just completed. The ideal condition would be the completion of the work without interruption; but as this cannot be attained, care should be taken in the location of, and in the manner of constructing, the connecting joints as the work progresses. Breaks should preferably be made at the centre of slab spans and at the centre of girders, or over the centre of columns, transverse of girders. Slab spans may be poured longitudinally over centres of girders or beams; but this method should be considered a second choice. Columns should not be poured all at one time. Generally, a height of 4 ft. should be allowed to set for three or four hours before the second pouring. Slabs, girders, and beams should be poured continuously up to the determined joint where stop forms have been placed. The method of pouring girders and beams may be poured in the slab, and then afterwards placing the slab is not desirable. The method of pouring a slab and allowing the material to slope down over the girder, and then beginning the next day, gives a slip slab joint which cannot be recommended. In all concrete work, stops should be made on horizontal and perpendicular lines at locations mentioned, the forms being carefully placed.

FINISH OF CONCRETE.

We are wrong in our present practice of finishing concrete surfaces. The surface finish of a piece of concrete should be an integral part of the main construction, and of the same nature and same composition. Long ago when we were called upon to plaster a wall by a surface cast to vertical surfaces. After a good many years of argument, the method of concrete workmen, we have now to pour where such surfaces are generally finished by spalling, so as to bring the surface finish to the surface and for a few inches back, so that there are not exposed. We are, however, following the old practice of resorting to horizontal surfaces, applying a surface of a rich mixture on top of the concrete base. In order to secure the best results, we should on horizontal concrete surfaces be using our method of finishing in the same way as the vertical ones. When we reach this point we will have a concrete surface which is sufficiently strong to be finished in the same way as the vertical ones, and proper tools for tamping.

CONSTRUCTION OF FORMS AND CURBS.

If there is one element entering into the cost of concrete which is neglected, it is the cost of forms and centering. So far as it is known to the writer, no architect or contractor or owner has a plan for the cost of the construction. Even the specifications are vague and indefinite. The following is copied by Dr. W. H. A. Moore, Secretary of the Indiana Engineering Society:

leaving it to the individual contractor to plan his own work. Some go to one extreme, and use a great deal more timber than is necessary; others to the other extreme, and use so little, and of such light construction, that the work is out of line and out of plumb. When it is considered that the cost of forms and centering represent from 20 per cent. to 33 per cent. in the cost of every cubic yard of concrete placed, under average conditions, it is hard to understand why the subject is not given more consideration.

Ordinarily it is left to the carpenter boss to put up something by rule of thumb, and by his judgment, based on past experience. There is nothing practicable about such a method. The designs for the forms of any structure should be carefully planned to accomplish the results with a minimum of material and labour, giving due consideration to the maximum amount of salvage in the material. It is our intention that accompanying the plans for any structure there should be prepared by the engineer and architect a sheet detail drawing showing how forms should be constructed, thereby insuring quality of workmanship and placing all bidders upon the same basis. If this is done, there is nothing to hinder any contractor from submitting an alternate design.

TYPES OF REINFORCEMENT.

Types of reinforcement now on the market may be classified as follows: (1) Plain bars, either medium or high carbon steel; (2) plain bars deformed or cold worked to secure deformation (this classification includes cold twisted and hot twisted square bars); (3) special patented types of plain or deformed patented bars; (4) built-up bars, meaning thereby combination of various sized members in order to utilise the quantity of steel to the best advantage; (5) built-up frames composed of bars of various sizes, generally used for beams, girders, and columns; (6) floor slab reinforcement of sheet metal, sheared, punched, or expanded, in order to distribute stresses; (7) cold woven wire similar to fencing material, delivered in rolls; (8) secondary reinforcement in the way of hoops or bands for columns, stirrups for beams, and spacers for walls, all of which may be made of hoop iron or wire.

SELECTION OF REINFORCEMENT.

Considering the various types of reinforcement just mentioned, and the many modifications now on the market, it is a difficult proposition to select the best, and generally the selection is determined by the price submitted by the commercial engineers building under sub contract to furnish the reinforcement; but it is hard to suggest a remedy. Individual preference and experience are always a very large element.

PLACING REINFORCEMENT.

The design of a concrete structure contemplates the placing of the reinforcement in exactly the position shown by the plans and cross sections of the various members. Designers are usually quite conservative in their allowances for protection of steel by fireproofing concrete below it, and the contractor better err on the safe side, and take advantage of this allowance, rather than to keep above suspicion. Many times reinforcement, and especially light bars, expanded metal, and wire fabric, are laid upon the forms, and then afterwards manipulated by a hook as the concrete is placed, jerking the reinforcement upward, so that the concrete may flow underneath. This is dangerous, inasmuch as there is no gauge to determine the final position of the reinforcement, and if the concrete flows under the reinforcement in a large quantity, it is almost impossible to replace the reinforcement without rebuilding the entire work.

Automatic spacers and devices for the accurate placing of the steel are readily obtainable, and should be used. Naturally, there is some increase of cost due to such a method; but it is money well expended. Especial care should be taken in placing steel in girders and beams so to distribute and arrange the

bars so that each individual part may be incorporated within an individual part of the concrete. The reinforcement for columns should be accurately made, and wired, with the hoops and stirrups in place, before it is erected in place ready to build the column forms around it. While good results can be secured from bar reinforcement, the author is at this time in favour of built-up columns of light structural shapes, for the reason that the integrity of the whole building depends upon the column construction, and a failure of any one column is liable to result in a failure of the entire building. Perhaps the most important reinforcing detail in respect to proper placing is top reinforcement of reverse flexure bars. No matter what the designer may have in mind, in theory, and how these bars are proportioned with reference to the main reinforcement at the centre of the slab or beam, it is absolutely essential that these top bars be placed accurately, and not disturbed thereafter. This is easier said than done. The main reinforcement is embedded in the solid concrete below the surface, and is protected from disturbance. The top reinforcement is close to the surface, where it is affected by the future operations, and also where the free ends project in case of a break at the joints and the progress of the work. These free ends, if jacked, will many times break the bond of the half-bar extending into the work. The placing of loose stirrups is a task requiring very careful supervision, and this is one of the strong arguments for built-up sections, wherein the stirrup shear members are rigidly connected. Finally, the employment of an expert mechanic or steelworker at increased wages over common labour is justified by the importance of this part of the work.

PROPORTIONS OF CONCRETE.

It is very usual to specify 1 2½:5 or 1:3:6 for the proportions of cement, sand, and gravel for the plain or monolithic concrete work, and the usual specifications for reinforced concrete is 1 part cement, 2 parts sand, and 4 parts gravel, although some engineers specify a richer mixture for columns. Inasmuch as there still exists a general ignorance on this point, whereby these specifications are understood as being 1:7½ or 1:9 or 1:6 respectively, it would seem that the best specifications should read that a mortar should be mixed of one part of cement to so many parts of sand, and this mortar should then be mixed with so many parts of the aggregate.

PROPORTIONS OF CONCRETE FOR THE STRENGTH.

The ideal mixture of concrete assumes that the aggregate and mortar are mixed in such proportions that the most dense, solid, and homogeneous mass is secured. This result may be secured by expert engineering supervision; but in reality the good common sense of the expert concrete labourer may be depended upon. The artisan who has accustomed his brain to this work, and who determines by the appearance of the concrete mixture, and by working the mixture, whether he is securing the best results, and, after a long experience, the author is inclined to say that he would just as soon trust a practical common sense labourer's opinion as to base his work upon the report of a so-called expert engineer.

PROPORTIONS OF CONCRETE FOR THE COST.

If a 1:2:6 mixture will satisfy the necessary strength required for a construction, there is no necessity of specifying a 1:2:4 mixture, inasmuch as the first mixture will require approximately 1½ cu. yd. per cubic yard, while the latter will require 1½ cu. yd., a difference of at least 50 cents per cubic yard in actual cost. Many times, for footings and monolithic work 1½ cu. yd. per cubic yard of concrete is all that is necessary. Why specify a rich mixture when one with a less amount of cement will at answer the purpose. If the extra cost will be included in his proposal.

ESTIMATING A PROPER ANALYSIS.

No proposals should be made upon a concrete job until a proper analysis has been

made of all the elements entering into the concrete construction. It is not sufficient to say or to guess that the cost of a cubic yard is so much; but, instead, an analysis should be made of the cost of a cubic yard of concrete under the conditions specified. There are a great many elements entering into the cost determined by such an estimate, which will be briefly stated in the following:—

COST OF MATERIALS.

Depending upon whether the concrete is to be made of a natural mixture of gravel or of stone and sand in various proportions will depend the cost of the aggregate. The amount of cement depends upon the proportions of the concrete, as also do the amounts of gravel, stone, and sand. The cost of water for proper manipulation should not be overlooked. In cities the cost of water is determined by rates of 9 or 10 cents per cubic yard; outside of cities the cost depends upon the labour necessary to secure the water.

Concrete-work remote from populous centres cannot be done at the same price as when close to such centres, unless the work is so remote that a permanent camp can be constructed, and the labourers held by the very remoteness of the work. Work that is at some distance from the point of supply must bear a charge for transportation, handling, and hauling of raw materials. This is a labour charge which is chargeable to material, inasmuch as the materials should be considered as *i.e.* the job; but nevertheless the cost is increased per cubic yard in the proposal.

A wall of concrete 27ft. thick may be retained by the same forms and the same amount of form labour as are necessary for a wall 1ft. thick. In the latter case the cost per cubic yard of concrete is twenty-seven times as great. It is, therefore, not safe to estimate the cost of forms on a basis of good price per cubic yard of concrete. Each individual job should be estimated for the amount of timber-work as carefully as for any other item. It does not matter whether the cost is estimated on the basis of floor foot or concrete surface, or upon a basis of feet board measure of lumber—the result is the same, inasmuch as this important branch of concrete construction receives individual consideration.

There seems to be a misunderstanding as to the separation of forms and centres. Forms, properly speaking, consist of the timber-work to form the members of concrete construction, such as columns, girders, etc., which must possess a certain regularity of form and evenness of outline. Centres, for floor-slabs, bridge centres, etc. Where the great amount of labour and work is expended solely for the purpose of supporting the mass at a uniform or definite height, the unit cost is much less than for forming for individual members.

Fabricated reinforcement will cost much more delivered to the job than loose bars; but, on the other hand, will cost much less to place in position. It is needless to say that a job where reinforcement is made up of small bars less than $\frac{3}{16}$ in. will cost much more per ton for labour than for large bars. Good judgment must prevail in this particular. It is very seldom that an estimate will be made based on the labour and the tonnage of each size bar. Rather it is the practice to strike an average labour price in harmony with the class of work to be encountered with reference to the different sizes of reinforcement. It is well to remember, however, that it takes practically as long for the steel-man to place and wire a $\frac{3}{16}$ in. bar as a 2 in. bar, while the tonnage is only one-fourth as great; and this point should be kept in mind in making an estimate.

There are a great many items of the cost of concrete-work which are included in the cost of materials, labour, forms and centres, reinforcement, etc. These costs consist of installing and removing machinery, coal, oil, repairs and fittings to machinery, general charge items, such as rope and bolts, and

the loss on petty tools, such as shovels. Such costs may be determined on the basis of so much per cubic yard, or preferably they may be determined on the percentage of labour on different classes of work. No matter what the method of determination, the costs are real expenses, and are as justly chargeable as those for gravel, or cement entering into the work.

SUMMARISED DETAIL ESTIMATE OF THE COST OF ONE YARD OF CONCRETE.

In the line with the foregoing remarks and the importance of the detail study of concrete, we submit the estimate for a cubic yard of concrete which according to specifications should be of a 1:2:4 mixture, to be used for purpose of building construction, and making these estimates we desire to lay emphasis on the fact that no two jobs cost the same when itemised in this way.

0.06 yds. gravel at 1.20/dol.	6d.
0.42 yds. sand at 1.00/dol.	1s. 4d.
1.16 lbs. of cement at 1.20/dol.	1.80
Wages	1.30
3000 L.B.M. of lumber at 20/dol., used four times at 20 cent less each time, plus 40 per cent sub-contractor	1.68
Reinforcement, 150 lb. per c.y.d. at 2 1/2 cts.	3.75
Total cost of material	8.50/dol.
Labour concrete	2.40
Labour forms, 80 ft. B.M. at 20/dol.	2.40
Labour centres, 120 ft. at 20/dol.	2.40
Labour reinforcement, 150 lb. at 1 1/2 cts.	.75
Total labour	7.95/dol.
General charge items, proportion of 15 per cent	1.34/dol.
Total actual cost of c.y.d. concrete	16.95/dol.

Each individual job that is encountered should be estimated in the same manner. It might not be necessary to throw the cost of forms and centres, reinforcement, etc., into the cost per cubic yard of concrete; but however the estimate is made, it should consider all these items, and in the end the result will be the same. If in addition there is to be applied a surface coat or finish its cost must be added.

If there is any one item which adds to the cost it is the form and centering work. For instance, in the detail estimate just given, cost of lumber and form and centering labour is \$5.88. If the work had been twice as heavy the cost of this labour would only have been half as much per cubic yard. This should bring home to every estimator the importance of dealing with temporary structural work as a separate unit. Personally the writer would rather guess the amount of reinforcement per cubic yard than to guess at the cost of forms and centres. The cost of labour is dependent upon the amount of concrete placed on the square foot of area of work covered, inasmuch as the cost of placing depends upon the distance travelled and the amount handled, the greater the distance the less the quantity, and the more cost per unit; and the less the haul the greater the mass, and the less the cost per unit. Such labour cost may reach anywhere to \$5 a yard, and it is suggested that a careful study be given each job to determine the amount of foot-panels of work necessary to complete it.

It is suggested and recommended that each separate and distinct job should be given a detail cost recording in line with the foregoing, in order that future work may be profitably estimated. It is a very simple matter to arrange a cost record book with a system of time reports so that such records may be obtained and used without increase in labour or cost.

WATER-COLOURS FROM THE SOUTH OF FRANCE AND THE PYRENEES.

Professor Wallace Rimington needs no introduction to our readers. His delightful drawings of architectural subjects are familiar to every English architect. An exhibition of his latest work was opened last Friday at the Fine Art Society's Galleries, Bond-street, and the assemblage includes many very charming landscapes, representing chiefly the lesser-known districts in the neighbourhood of the Pyrenees. Some are not precisely located, and among these is "The Harvest Field" (50). It is very much men-

tioned for the airy and vigorously handled charm distinguishing this drawing, which is distinctly one of the most notable in the room. Architecturally, perhaps, No. 62, marked "Sabbia di Santo Domingo, Gerone, Spain," takes the precedent place. The comparatively unknown character of this city on the rapid river Oña, and situated on the steep slope of the hill, made it a charm. It is famous for the wide-naved cathedral, which has the web-vault in Christendom, spanning a space of 73 ft. or 30 ft. wider than the nave of Canterbury, and 21 ft. more than that of York Minster. The churches of San Pedro and S. Felici also add to the interests of this picturesque city, most of its old houses being crowded below, and often grown with ajacine windows and open stages above under the roof's eaves. The *Fuente de la Estrella*, the most curious old house in the city, is one of the earliest in the town, with shafted windows belonging to the end of the 12th century. Mr. Rimington's sketch shows the numberless steps rising up the slope forming the street in his picture, and seen under a ranging staircase rising diagonally across the foreground, the effect of realising the acme of quaintness, broadly and brilliantly drawn. The next study, executed in cold mountain air, represents the ribbed tiled roofs of the Village of Corps, near Grenoble (68), overlooking the gorge to the left. The Romanesque church, with its 12th-century belfry at Cornella de Conflent, on the pass through Villefranche, is shown in No. 46, in dark brown stone, and near by are to be seen the remains of the Augustinian Priory. The village itself has several good Renaissance houses still standing. The portal to the church chosen for this water-colour of Corps is in beautiful white marble. The gateway in the picture of La Grave (No. 40) corresponds with the sobriety of colour peculiar to the quiet groves and bays of the church itself, with its Romanesque apse, so charming and unassuming in its reserved simplicity. The walls of Aumey are the subject for a refined ivory-like sketch (42), showing the steps up the steep street below the wide spreading eaves, projecting over the ramparts and houses flanking the thoroughfare. Pan, 26 miles away from the great mountains of the Pyrenees, is often merged for weeks in a shroud of dense atmosphere, but rising possibly over these mists stands the skyline of the Chateau of Henry IV., so much renovated, however, that its antiquity might well be questioned. The approach is over a bridge spanning the moat. The trees along the ramparts above have assumed an autumn tint in Mr. Rimington's picture. No. 44 and the half timbered low buildings, under which the water runs, give scale to the towering castle skirting the sky. The composition study, an "unknown" Port on the Mediterranean (68), represents a vast square tower, with domed turrets at the four corners, and a larger cupola growing above the parapet crowning the centre. It is a witness to the imaginative ability of the painter, whose intense appreciation of colour also is evinced in No. 27, which supplies an interior perspective of the groined dark stone church of St. Laurent, Le Puy, crowded with chairs in artistic confusion, and mingled with sunshine, while deep blue-stained glazings in the recessed and sombre part of the church, light up its shade by way of contrast. No. 29, a fine carved Renaissance-like carvings, and a lintel over it, is described as "A Medieval doorway," which we should have doubted, had not the Professor put it down in the Catalogue, against which we have a caveat, left our query mark. The Elise de Zempfers, Luz St. Sauveur, Pyrenees (No. 11), stands in the market place. This old quaintly walled village above the gorge of the Elise, crossed by the Pont Napoleon, built in 1800. This Templar's sanctuary, milds the mountains look more like a fortress, with its embattled walls and postern gate, beyond which is seen the belfry tower. The artist in this study seems to suggest its cool situation and unfrequented, or half-deserted, character. It is surprisingly dexterous sketch, with the detail touched in without effort (No. 14 depicts the broad arched porch of Notre Dame at Louviers, N.W.,

Francis Church may be described as a place of no longer of commercial consequence. The older part of the tower is constructed of timber, and this rich Gothic church is mainly of 13th-century date, the splendid porch shown by Mr. Rimington being two centuries later, a perfect lacework of stone, in which the apothecosis of the flamboyant is realised. The nave of this church of Notre Dame is of great height, and is lighted by windows stoned with beautiful stained glass. It would make a picture for the water-colourist as worthy of his skill.

WATER COLOURS OF THE NEW FOREST DISTRICT.

Mr. Wilfred Ball, R.E., R.B.C., as a right water-colour painter of subjects prettily rendered, and therefore eminently adapted to domestic decoration, is always refreshing and welcome, so that we are glad to see his ninety-two studies hung in the adjacent gallery at 118, New Bond-street, with the old Turnpike Cottages, Bucklands, "The Fisherman's Rest," near Lymington, and Hursley, Hants, where John Keble has buried in the churchyard. Minchard Church carries us away into Somerset, far from the New Forest, and Alum Bay, in the Isle of Wight, brings to mind other delights of past holiday times. More south, Christ Church, "when evening was glowing with rosette light," furnishes Mr. Ball's brush with several studies, and this one (66) among the best also, "Hayling at the Solent" (80) recalls joyous times of early youth. "Coronation Day at Lymington" (14), with the hunting spanning the street, shows touches of colour not commonly seen in his sombre quietude. Where every study is bright, effective, and determined to show itself as handsomely as single and instances other than by enumerating their subjects, and Mr. Wilfred Ball's work would end in any home, because they are so homely, restful, and pleasing.

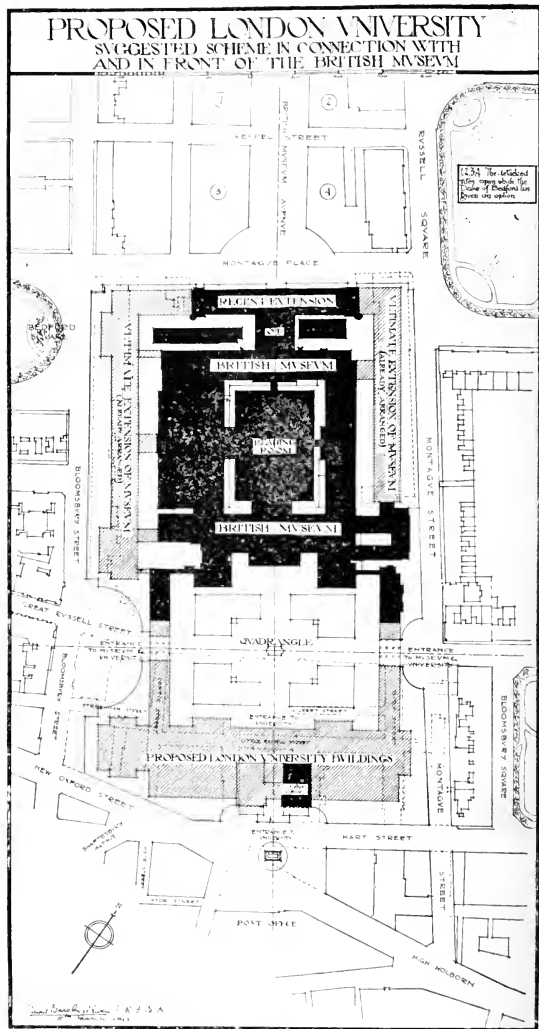
THE PROPOSED NEW LONDON UNIVERSITY BUILDING.

A proposal has been published whereby buildings for a reconstituted London University are to be erected on four detached sites at the back of the British Museum. As an alternative, I suggest their erection as one block in front of the Museum, in accordance with the accompanying plan.

It is the island area in which the British Museum stands is enlarged so as to afford ample space for these buildings adjacent to the Museum, with St. George's Church introduced as a central feature, thus introducing a very delightful note in architectural treatment. This proposal would bring the University into direct relation with the British Museum. The site is large enough for all useful expansion, and the buildings erected upon it would very properly be the visible expression of the University as a great public institution, and would appeal to the imagination of the people. With the cooperation of the different authorities, this scheme would be realisable, the leased land to be the property affected contributing to its gradual development.

The same late necessity as for a liberal, well-considered scheme for University buildings. A start might very well be made on the area facing New Oxford-street, between Museum-street and Bloomsbury-street, where the houses have been pulled down. The modern flats and hotels facing the Museum need not be demolished for many years, until the University buildings are nearly complete, allowing the great quadrangle between the Museum and the University to have its significance not there.

The proposed expansion would be the best as surrounding it to a great square. It is large as Bloomsbury-square, and should be one of the finest and central squares in Europe. Through traffic should not be admitted, and the two great entrances, crowded by attendants, would not contain a serious congested repose. A small open square might be arranged central with the main square, at the junction of New Oxford-street, Hart-street, and High Holborn-street. The land abutting upon this is



mostly Crown property, which it should be possible to acquire on favourable terms. This open space would be convenient, and would indicate the importance of this educational centre.

The scheme would be a great permanent London improvement, and not only the London authorities, but the nation, might cooperate in its realisation. It would enhance the value and increase the security of the priceless national collections in the British Museum upon which millions of public money have already been expended. The Duke of Bedford, as freeholder and benefactor of the

improvements to the north of the Museum, might also be ready to assist in this great improvement.

DAVID PARCLAY NIVEN.

The church of St. Murchin, on the Strand, at Limerick, is in a dilapidated condition, and is about to be rebuilt from plans by Mr. Brian E. F. Sheehy of that city.

Plans are to be presented to Peterborough City Council for a block of two-roomed tenements letting at 1s. 3d. to 1s. 6d. per week. The tenements will be built as bed-sitting-rooms, with a kitchen range in each.

CURRENTE CALAMO.

We give prominence elsewhere to Mr. David Barclay Niven's suggestion for the better location of the proposed new buildings for the University of London, because we think it is a very admirable one, and infinitely more advantageous than the site already advocated. We gave our reasons for objecting to that site on this page in our issue of February 23, and nothing since has induced us to modify them. Mr. Niven's proposal would give ample space for all needful expansion, and we shall be surprised and disappointed if it does not commend itself to the University authorities and the generous donors who have already promised such magnificent help. We need not add a word to the considerations Mr. Niven sets forth; we only ask they may be carefully studied by all concerned, and that the opportunity may not be thrown away. It is worth noting, perhaps, that at Wednesday's meeting of the University Senate, Sir William Collins said that no communications had been received regarding the scheme for the removal of the University headquarters to the site to the north of the British Museum. He had written to the Chancellor (Lord Rosbery) protesting against this ignoring of the Senate, and he asked the Senate to allow him to resign his office of Vice-Chancellor. At the request of the Senate, however, he withdrew his resignation.

The necessity for the intervention of the R.I.B.A. may be pretty well gauged from the proceedings of the Warrington Education Committee last Monday night. It was reported to the Committee that the Royal Institute of British Architects and the Manchester Society of Architects had written suggesting that the Committee should allow competitive plans for a new Oakwood Avenue Council school to be assessed by a professional architect, and stating that members of the Institute would not be allowed to compete if the committee themselves insisted on judging the plans. The chairman said the committee's decision, if adhered to, would keep the cream of the profession from competing or make members of the Institute liable to be struck off the roll if they competed. Several members thought they were competent to judge their own plans, especially with the assistance of the surveyor and the director. Mr. Jolley objected to a committee of amateur architects settling so important a matter, and as he did not believe in "knob sticks" of any kind, moved that the minute be referred back. Mr. R. T. Fairclough (Chairman of the Sites and Buildings Committee) said the Institute had no right to dictate to the committee as to what they should do. It was decided by a large majority to adhere to the original intention not to employ a professional assessor. If, after this repeated defiance, any architect takes part in the competition, he will fully deserve the treatment he is likely to get.

The Smoke Abatement Exhibition at the Royal Agricultural Hall, where Sir William Richmond opens to-morrow, is one that has a more than ordinary claim on public attention at the present juncture. Most of us have had good reason to economise coal lately! If for no other reason, it is time we ceased to waste it in purposeless and destructive smoke! The miners will get to work again, and most of us, we suppose, will forget our lesson, till some day it is taught us with an emphasis we shall

not readily forget! Of all the propagandists who challenge our attention, the Coal Smoke Abatement Society, under whose auspices this exhibition is held, seems to us to deserve the support of every reasonable human being in a greater degree than any other organisation we can call to mind, and the conferences and lectures next week at Islington should attract big audiences. Sir Arthur Church is to discourse on the action of coal smoke on building stones and mural paintings. Dr. Riddell on the effects of smoke on metalwork, and many others will deal with its general and deadly effects on life and health. The exhibition seems a good one, and is classed under seven sections.

The Playgoers' Club moves this week into its new home in Cranbourn-street, which we fully illustrated and described in our issue of June 23, 1911. Few Metropolitan clubs offer their members more material advantages than the Playgoers now enjoy, or such a pleasant and varied companionship, embracing men of all avocations united by their interest in the drama. Certainly no other club has its own railway station downstairs, from which any place in the kingdom can be reached with a minimum of time and trouble. Located in the very heart of theatre-land, and practically in the centre of the metropolis, the one possible contingency that can threaten the club's enjoyment of its present manifold advantages will be the rush of applications, raising its membership once more to a number beyond its capacities. Fortunately, admirable as the accommodation in every way at Cranbourn-street, the club's amenities are not confined to its own premises. It has raised funds during the last two or three years to send and take no less than 136,000 poor children to the theatres during the pantomime season; so that Bernard Shaw's somewhat captious objection that the Club "lures" players away from the box-office seems a little premature. Lectures, dances, concerts, and dramatic performances are enjoyed frequently throughout the season by the Club's members without extra charge, thanks often to the kindly co-operation of many of those whose influence is predominant in stage quarters, and always to the untiring industry of its active committee and their most genial of secretaries, Mr. James Sharpe, to whom applications should be made at 29, Cranbourn-street, W.C., by any readers desirous of belonging to the best and brightest Bohemian brotherhood in London.

We think Sir Arthur Boscawen's Housing of the Working Classes Bill, which was read a second time last Friday, hardly, perhaps, deserved Mr. Wedgwood's ridicule of the Bill as "a scheme for the better caging of the animals of the Zoo," or all Mr. Burns's picturesque derision of its ideas, which he attributed to "certain economic fledglings from East End settlements." On the other hand, we confess we share Mr. Burns's distrust of the new "peripatetic Commissioners on wheels," who are joining the grand army of the great well-paid, which is swelling the Estimates. Ere long it will be as difficult to find a man who is not a Commissioner of something as a Frenchman without the ribbon of the Legion of Honour in his buttonhole. The financial side of the scheme is also weak. The Imperial Exchequer is to come to the relief of local authorities who may be deterred from carrying out housing reforms by financial difficulties to the extent

of half a million a year, and the same landlord may quite likely find the new scheme profitable to himself, although he may wince at the more stringent conditions under this than previous Bills.

Is gas "a wild beast"? We fear many will say yes if the answer depends on its tendency to escape! Most people who move into a fresh house of any age, where gas has been used by several successive occupants, know the worry experienced in tracing escapes due to worn out or accidentally broken pipes. Are they liable for damage done by escapes? The Lambeth County Court Judge is considering the matter in reference to a case tried last Friday, in which William Larking, Batavia-er of New Cross, claimed £50 damages at Lambeth County Court from William B. Doughty, of the well-known Elephant and Castle, for injuries sustained in a gas explosion in a part of the public-house. Mr. Charles Doughty, for the plaintiff, argued that as defendant had bought the gas on his premises and had not kept it safely, the position was analogous to that in which a wild beast escaped from custody. Defendant was therefore liable. Plaintiff alternatively claimed damages for alleged negligence, but Judge Parry decided for the defendant on this point, on the ground that the escape was not due to any action on his part.

"Then," said Mr. Doughty, "it is the neatest case which has ever arisen as to whether gas is a wild beast. I can only proceed on the assumption that if it escapes the owner is responsible. It has been laid down that electricity could be looked upon as being in the same position as a wild beast in this respect." His honour questioned whether negligence could be laid upon the owner of the "wild beast" if it escaped through the negligence of others than himself. Mr. Doughty submitted that if the judge lent a lion to the Zoological Society, and through their carelessness it escaped, he would have to pay for the person eaten. The judge reserved his decision, which will be awaited with interest. The danger and legal risk to all of us is infinitely greater than many people imagine. We have still lively memories of personal peril and many months of anxiety when we were blown up in the Strand years ago. The Gas Light and Coke Company paid the mere cost of reinstatement then, but not a farthing ever reached us to make up for interruption to business and quite a year's worry till it was settled who was to reimburse.

Such services as there are in the Civil Service Estimates are in favour of the building trades. The total, £3,638,080, required for the current year, compared with £3,466,090 last year, shows an increase of £171,984; £215,300 will be required for Labour equipment and insurance buildings, as against £140,000, an increase of £75,300; £71,300 will be required for royal palaces, a decrease of £1,400; £50,800 for the Parliament buildings, a decrease of £3,370; and £125,700 for royal parks and pleasure gardens, a decrease of £7,833. Most of the money, anyhow, will be spent on material and labour, though in few cases, probably, will architects benefit.

A useful half crown book on the Income-tax, by F. B. Leeming, is published by Effingham Wilson, 54, Threadneedle-street,

sub-division or discontinuation of the work shall be as follows:—

For preliminary studies (sketches), one-fifth of the above charges.

For complete plans and specifications, including the preliminary studies, one-half of the above charges.

For details, one-fifth of the above charges.

For superintendence of the work, when drawings are not furnished, 2½ per cent on the cost of the works.

No. 12.—Where engineers or other experts are employed by the owner to co-operate with the architect for certain works (as for heating, ventilation, electric work, etc.), the architect shall receive for his commission 2½ per cent of the cost of such work.

No. 13.—For valuation of property requiring measurement and detail estimate, where the value shall not exceed £5,000, the commission shall be 1½ per cent. Where the value exceeds £5,000, the commission shall be 1½ per cent on the first £5,000, and 1 per cent on the remainder.

No. 14.—In case the owner of the building should require the services of the architect to prepare quantities, or for measurement of the work done or to be done, such services shall be paid outside of the regular commission at the rate of 2 per cent on the valuation of the cost of the work.

No. 15.—Should the owner desire to have a clerk of the works in the building, the said clerk of works shall be engaged and be under the direction of the architect, and shall be paid by the owner.

NATIONAL ART COMPETITION.

The Board of Education issued last Friday a list of students rewarded in the National Art Competition, 1911, with the report of the examiners on the selected works of schools recognised under the regulations for technical schools, schools of art, and other forms of provision of further education in England and Wales, and some reproductions of the work of the students.

The following are the awards of gold medals:

Birmingham, Margaret-street, School of Art.—Thomas Cuthbertson, design for gold necklace and cross and two rings, enamelled and set with stones.

Hammersmith, L.C.C. School of Art and Crafts.—Christine Gregory, modelled terra-cotta life.

Ilminster, L.C.C. Camden School of Art.—Jean Campbell, design for enamelled silver pot pourri jar, set with amethysts; Edward Joseph, design for necklace and pendant in silver, gold, and enamel, set with stones.

Wandsworth, L.C.C. Clapham School of Art.—Hector Quirk, shaded drawing of a figure from the nude.

Macclesfield School of Art.—Robert B. McCoy, design and woven tapestry hanging.

Nottingham School of Art.—William H. Wright, modelled and carved design for fireplace.

Warrington School of Art.—Sydney W. Clwyd, study of ornamental design.

Dublin, Metropolitan School of Art.—Harry Clarke, designs for stained glass; Albert G. Power, model of a figure from the nude.

The Princess of Wales's Scholarship of £75 has been awarded to Christine Gregory.

The number of works submitted by for the competition was as follows:

England and Wales.—11,161 works from 220 schools of art and branch schools of art, 331 works from 29 art classes, 944 works from 63 evening schools, 113 works from two technical institutions, two works from one day technical class.

Scotland.—56 works from seven schools.

Ireland.—489 works from 14 schools.

Jersey.—Nine works from one school.

New Zealand.—45 works from three schools.

Total, 13,153 works submitted by 349 schools and classes.

Ten gold medals, 162 silver medals, 261 bronze medals, 569 book prizes, and 991 commendations were awarded.

A marble statue of Lord Justice Fitzgibbon is about to be erected in St. Patrick's Cathedral, Dublin. The sculptor is Mr. Albert Bruce Joy.

These most interesting studies appeared in our issues of Nov. 3 and Nov. 24, 1911.

BEAVER BOARD.

A new material which has met with much success in the States has just been introduced by the Beaver Co. Ltd., Dept. T, 16, Eastcheap, E.C. "Beaver Board," as it is called, is made of pure wood fibre pressed into panels of uniform thickness, with a beautiful pebbled mat surface admitting of artistic decoration. It is nailed in panels to the studding of new rooms or directly over existing plaster in old rooms; the seams being covered with decorative strips which give that artistic panel arrangement so popular in the modern home. It is easily handled, and can be readily cut by a fine saw, sharp knife, or chisel. Rooms finished in Beaver Board are rendered most attractive and useful, because of its adaptability to artistic decoration, added to which, it is economical; it suits any kind of building, retards heat, cold, and sound, and does not crack or deteriorate with age.

We recommend architects and others to send a card for the "Beaver Bulletin," illustrating its many advantages. It will be sent free.

The late Mr. James Redford, F.R.I.B.A., of Seaford, Northdown (Cheshire) left property amounting to £15,232.

The Tonbridge Urban District Council are considering the proposed widening of the ground, with regard to the pathway (on the north). They hope shortly to have the benefit of the advice of a specialist in military architecture, upon the proposals which have been made.

Some important street improvements are to be carried out in Bowdoin. Bowdoin road from the north end of Foundry street, to where it joins Northgate, is to be widened. Fifteen shops are to be pulled down, and a small pile of old buildings known as the Flat Iron property is to be demolished.

Next term Jesus College, Cambridge, intends to commemorate one of its earliest and best-known men in the person of Thomas Cranmer, to whom a memorial is being erected in the chapel. The artist is Mr. A. Bruce Joy, and the design of the statue of the College, will give an address at the unveiling.

A movement has been started to raise £2,000 for a bronze statue in the Anglican Cathedral grounds at Melbourne to Matthew Flinders, the explorer. Flinders was a daring English navigator, who surveyed a great portion of the Australian coasts at the end of the 18th and beginning of the 19th century.

The St. Helens education authority, having bought an open space, together with a number of shops and dwelling houses, in Liverpool road, in the heart of the town, have prepared plans for a large new elementary school to take the place of the old Ragged School. The Board of Education will be asked to sanction the borrowing of £16,000, the cost of building the school.

Mr. William Manning, S.S.C., here, on behalf of the family, presented the governors with a portrait in oils of his father, Mr. Peter Manning, who acted as clerk of works at the Devonian Hospital, Edinburgh, during its erection by the distinguished architect, Mr. W. H. Playfair, between 1842 and 1852. During the visit of Queen Victoria and the Prince Consort to the hospital in 1852, in 1859, Mr. Manning conducted the party over the building. He died in 1859.

Mr. P. M. Crosthwaite, M.P.C.E., represented the Local Government Board at the inquiry at St. Andrew's, into an application of the urban district council for sanction to borrow £41,019 for the purposes of sewerage, being the estimated expenditure on part of a scheme prepared by Mr. C. J. Lomas, C.E., engineer in charge, by which it was claimed the storm water outfall would be transferred from near to the pier to a point near the northerly end of the town. In connection with this pumping station would be erected also ventilating shafts.

Mr. Elison's method of building houses of concrete has been further improved upon by Dr. R. H. R. R. of Toronto. The new designed houses that are being erected by The Ottawa Concrete Homes Company, Limited. They will be built of poured concrete, and will have perfectly continuous cavity walls. The concrete is going into the masonry, says the *Contract Record*, with a view to producing variations in design and finish so as to make them attractive not only from a utilitarian standpoint, but also from that of artistic appearance.

Building Intelligence.

BIRMINGHAM—The demolition of the offices of the Birmingham Canals and Navigation, at the corner of Broad-street and Salford-street, shortly to be entered upon, will remove from Birmingham one of its most picturesque buildings. The site on which the building stands has been owned for nearly ninety years, lease by a London syndicate, and the ground offices and their arches will give place to new business premises. On the site, which has a frontage from the Britannia Buildings to Curzon Hall, with an uniform depth of 1,500 ft. from the street line, will be erected a building of several stories, having a stone facade, with minor showrooms on the ground floor, and suites of offices above. There will be four or five motor showrooms, each with a floor capacity of between 2,100 and 2,400 sq. ft., and it is estimated the building will cost about £50,000. The plans are practically completed, and the demolition of the existing buildings will begin very shortly. As yet no approach to the canals and wharves will be provided.

ROCHDALE—The board of management of the infirmary have accepted the recommendation of their building sub-committee, and adopted the plan and design submitted by Mr. Hugh Healey, F.R.I.B.A., of the firm of Messrs. Horsfall and Healey, Rochdale and Manchester, subject to minor alterations, which they discussed the other day with Mr. Pole, of London, who was a partner of the late Mr. Alexander Graham, F.S.A., the assessor in the competition in which Mr. Healey's design was selected as the winner. When the full extension is completed, accommodation will be made for 28 more beds than are being provided in the present scheme. Provision of more bedrooms for nurses and of a new nurses' sitting room will be made by extending the nurses' home on the south. A new kitchen department will be built, with servants' quarters over. There will also be a rearrangement of the medical officers' quarters and of the general offices, and a new committee room will be provided. In the lower corner of the site adjoining Whitehall-street will be the mortuary, the boiler-house, and the laundry.

The tower of Sandway Church, Cheshire, which was stopped for want of further funds at the height of 25 ft., is now to be carried to a height of 42 ft. 6 in., and signed by the late Mr. John Douglas, F.R.I.B.A., of Chester. The work will be carried out by Mr. Clegg, builder, under the direction of Mr. Manshill, of Chester.

The city council of Canterbury have under consideration a recommendation by the irrigation works committee to seek sanction for borrowing £5,500 to provide brick filters and bores from plans prepared jointly by the city surveyor and the superintendent of the irrigation works.

The Edinburgh Sir Walter Scott Church, which was erected in 1841, near Southcraigh, is about to be the subject of a rearrangement of the interior and monuments of Sir Walter Scott, who is buried in the churchyard. The tower, 21 ft. by 18 in., which was designed by Mr. J. D. Cairns, architect, George-street, has been cast in bronze by Messrs. Wm. Haydon and Sons, Glasgow, and is surrounded by a border of Venetian marble.

On Monday afternoon a new theatre, built by Mr. Louis D. Dicks, Edinburgh, was formally opened at 8 o'clock by Provost Grant, in the presence of a large attendance. The theatre is situated in the heart of the town. Circular in shape, the building consists of two stories. The area has accommodation for 500, and a horseshoe gallery for another 300. The stage is 30 ft. deep. The cost of the building has been £1,200.

Mr. Malet, an inspector from the Local Government Board, attended at the parish hall, Thorpe St. Andrew, Norwich, on Wednesday week, and held an inquiry in respect of an application by the rural district council of Norfolk for leave to borrow £10,750 for the purpose of sewerage and sewage disposal in Thorpe St. Andrew. Mr. Arthur J. Martin, M.Inst.C.E., attended on behalf of the district council, and explained his plans for the proposed scheme.

COMPETITIONS.

BANNED COMPETITIONS.—The Council of the Liverpool Architectural Society requests all members to refrain from competing in the following architectural competitions, the conditions for which are unsatisfactory:—Warrington Schools, Llandudno Police Buildings, Ormskirk Golf Club.

OAKWOOD AVENUE COUNCIL SCHOOLS, WARRINGTON.—The following notice has been sent to all its members by the Manchester Society of Architects:—"The promoters refuse to modify the conditions they have sent out, and say that it is not their intention to employ a professional assessor. I am instructed by the Council to inform you that these conditions are unsatisfactory to the Council, therefore members of this Society must not submit, either directly or indirectly, any designs in the above mentioned competition.—Yours faithfully, Arthur S. Prewis, Secretary." The Royal Institute of British Architects has also notified its members to the same effect. Most architects of recognised standing will therefore refrain from submitting plans in this competition.

SHANKLIN, I.W.—Mr. G. L. Thorne, of Atherley-road, Southampton, has been successful, out of fifty-three competitors, in securing the premium offered for the best design for Liberal Club premises at Shanklin. Mr. Thorne is a member of the staff of Messrs. Weston and Burnett, of 24, Portland-street, Southampton.

New council schools were opened at Farid, near Fethiye, last week. The contractors were Messrs. M. J. Allen and Sons, of Brampton, Hants.

The tender for the erection of the Pigeant grand stand at Scarborough has been let, the accepted price being £2,799. Four thousand five hundred seats are to be provided.

An adjudication in bankruptcy has been made against John Starkey Gardner, Tradescant road, South Lambeth, and Riverholm, Maidenhead, Co. Maidenhead, lately Wilcox-road, South Lambeth, art metalworker.

The corporation of Belfast have applied for a loan of £88,500 for the completion of the villas at Purdysburg Asylum, £25,813 for the completion of the branch sewers in the Sydenham district, and £4,985 for a new trunk sewer at Ballynarett.

The Right Rev. Dr. Nickson, Lord Bishop of Jarrow, opened the new vestry-hall of St. Francis Church, Hendon, Sunderland, and reopened the renovated interior of the church, on Friday. The cost of the building and alterations is between £1,000 and £1,100.

At the annual meeting of the Royal Birmingham Society of Artists, held on Saturday evening, the members presented to their vice-president, Mr. Jecher A. Coor, F.R.B.A., a portrait painted by Mr. Edward S. Harper. At the same meeting, Mr. C. E. Bateman, F.R.I.B.A., was elected as a member of the society.

The "London Gazette" announces that the King has authorised Mr. P. B. Chambers, Professor of Architecture in the National University of Buenos Aires, to wear the Cross of Chevalier of the Legion of Honour, conferred by the President of the French Republic, in recognition of services rendered in connection with the Transatlantic electric line for four thousand Aires in 1910.

At the annual meeting of the Timber Trade Federation of the United Kingdom, Mr. George H. Lindsey-Renton, of Messrs. G. H. Renton and Co., timber importers, Cannon-street, and Mr. John Gatliff, of Messrs. Gatliff and Barry, timber agents, of St. Helens-place, were respectively elected president and vice-president. The president was invested for the first time with a presidential badge.

The corner-stone of a new theatre, to be called "His Majesty's," which is being erected in Quay-street, Manchester, was laid on Saturday by Lord Teynham and the Dean of Manchester (Bishop Weldon). The new theatre will have seating room for four thousand persons—five hundred more than that of any other theatre in the neighbourhood. The architects are Messrs. Farquharson, Richardson, and Co., and the contractors are Messrs. Ernest Hawkins and Co., Westminster.

Our Illustrations.

TOTTENHAM COUNTY SCHOOL.

This school is to be erected on a site of about 13 acres at the Green, Tottenham, adjoining the public baths, and has been designed to harmonise with the several municipal buildings adjoining. The school provides accommodation for 495 boys and girls in sixteen classrooms, and also the following extra accommodation: Hall, chemical and physical laboratories, preparation-room and dark-room, cookery-room, art-room, manual-training room, botany room and greenhouse, dining-room and kitchen, library, cloakrooms and laboratories, changing rooms, common-rooms for teachers, principals' room, head assistant mistress's room, cycle stores, etc. Each classroom is arranged so that cross-ventilation is obtained. The portion of the school fronting to the Green is faced with red brickwork and stone dressings, roofed with rustic slates and copper-covered floors. All internal floors, beams, and lintels are of reinforced concrete, as also are the flats over corridors, etc. The school will be heated by the pressure, hot-water system, and lighted by incandescent gas. Messrs. Matthew Brown, of Wood Green, tender of £16,577 has been recommended for acceptance by the Education Committee, and the cost of the work will be borne equally by the Middlesex County Council and the Tottenham Urban District Council. The plans have been prepared by Mr. H. G. Crothall, architect to the Middlesex Education Committee.

GOVAN PARISH CHURCH, GLASGOW: NEW CHANCEL.

Our double page plate illustrates the interior of the chancel of this church, which was recently lengthened through the generosity of Sir John Stirling Maxwell of Pollok, the east wall being rebuilt. The interior walls are faced with brick with bands of stone. The old sacristy, which was found in the graveyard, and is reputed to be the shrine of St. Constantine, Sir R. Rowland Anderson, LL.D., F.R.I.B.A., F.R.S.E., is the architect.

WHARNcliffe MEMORIAL.

This memorial, erected by the tenantry in memory of their late landlord, the Earl of Wharncliffe, is placed in Newtyle Church, Forfarshire. The tablet is of cast bronze, and is surrounded by a marble frame. Sir R. Rowland Anderson, LL.D., F.R.I.B.A., F.R.S.E., is the architect.

KEIR MEMORIAL, DUNBLANE CATHEDRAL.

This monument, erected to the memory of the Stirlings of Keir, is on the east wall of the north aisle of nave. Alabaster has been mainly used, with marble for the columns, etc., the ornament being picked out in gold, and the marble work coloured. Sir R. Rowland Anderson designed this memorial.

CHIMNEY-PIECE FROM GODESBERG.

This elevational drawing also gives the side profile of a capital example illustrative of the adaptation of Renaissance to modern domestic treatment with somewhat decidedly rich detail well contained within structural lines, avoiding the indecorous extravagance more recently the vogue in the already expiring L'Art Nouveau style, which seems to have had its day, more particularly in Germany. Messrs. Kayser and von Grossheim are the architects from whose design this chimney-piece was carried out. It compares favourably with much similar work of its kind from abroad.

SUNDIAL, HAWARDEN.

This house, one of the more recent works of the late Mr. John Douglas, in conjunction with Mr. Minshull, architects, was built for Miss Helen Gladstone on a sloping site close by the noted park and castle. Local bricks, with facings of cherry colour, also made in the neighbourhood, were used in the ground floor, the windows having millions of moulded Ruscon brick with Ruscon stone

sills, transoms, and heads, which have been continued along to form bands. Over the verandah on the south front, and occupying a sheltered position between and accessible from the bays of the bedrooms is a balcony looking out over a fine sweep of country. The upper part of the building is rough-cast in cement, the timber framing is of oak, and the roofs are covered with Westmoreland green slate. Messrs. W. and T. Baker, of tractors, of Hawarden, carried out the work. This drawing was exhibited at the Royal Academy.

The Admiralty has decided that the depth of the basin of the Royal Naval base shall be deepened 5ft. more as the bottom consists of rock. The work will occupy another year.

The corporation of Sheffield have raised the salary of their surveyor of tramways, Mr. W. J. Hadfield, from £500 to £650 a year, with a further increase of £50 as from March 26, 1912.

To the National Physical Laboratory at Teddington, London, has been added, for the testing of roads and road materials, and providing machines for making mechanical tests on road materials.

Mr. P. M. Crosthwaite, Local Government Board inspector, held an inquiry at Bodelsgert on Friday into an application by the Glasgow Rural District Council for sanction to borrow £2,000 for a sewerage scheme and £2,000 for a water scheme for the village of Bodelsgert.

The Canterbury Board of Guardians agreed at their last meeting, on the recommendation of a committee of the whole board, that a new workhouse laundry be built on the site suggested by the Local Government, and that a related cost, including machinery, of £2,000, and that Mr. Done be instructed to prepare a block plan showing possible future extensions to the workhouse and infirmary.

A sub-committee of Edinburgh Town Council have agreed to recommend that the preliminary notices in connection with a town planning scheme for the area of the city comprising Gt. George-street, Restalrig, and Leith. The sub-committee have also discussed a number of details connected with the town-planning scheme, already under consideration, dealing with the area near East London-street.

The foundation stone of the new English church at Versailles was laid on Friday by Dr. Bury, Bishop for Northern and Central Europe. The old church, an unpretentious building which had been erected in 1860, stood intact throughout the Franco-Prussian War, but was burnt to the ground on Sunday morning, January 29, 1911. The design of the new building, in the Gothic style, was submitted by M. Yve-Parmentier, a Paris architect, and has been adopted.

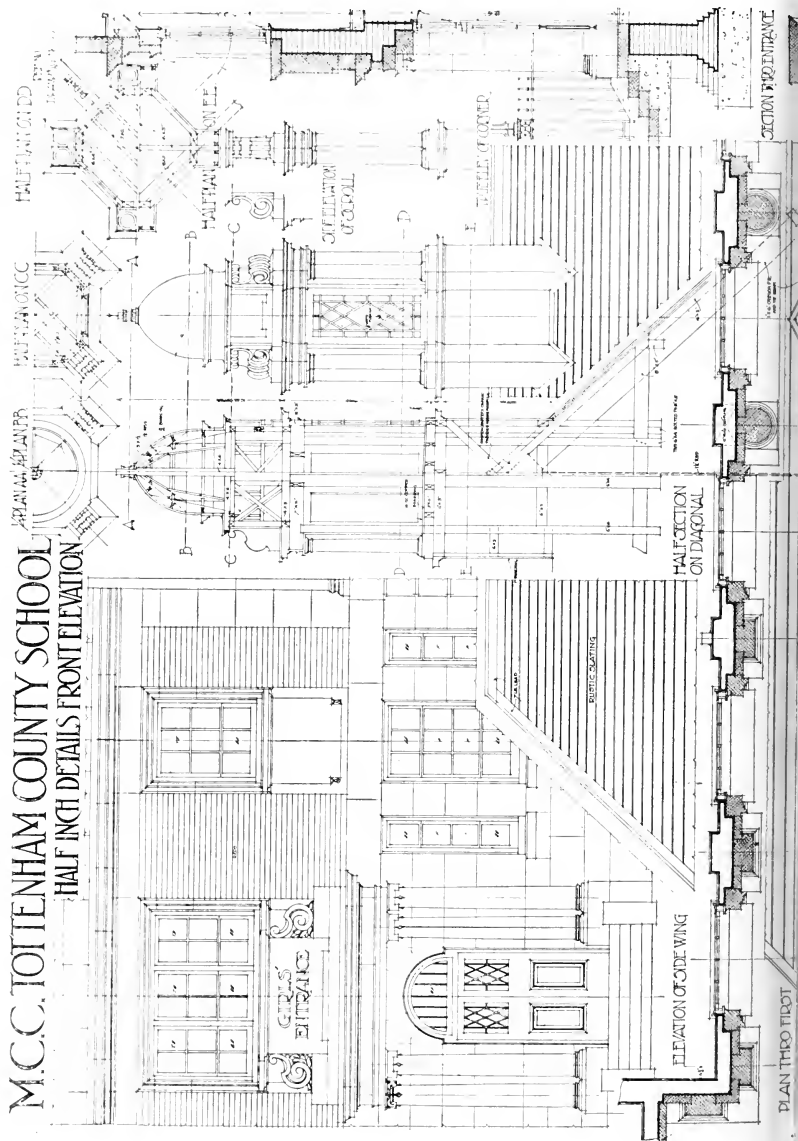
The corporation of Eastbourne, purchasing, for £100,000, Devonshire Park, at present held by a company. The Duke of Devonshire is reducing his share capital from £15,000 to £23,000, is giving £10,000 towards the purchase money, and interest on the remaining £13,000 he offers as an annual contribution to the maintenance of an orchestra. The park is eleven acres in extent, and comprises baths, eight shops, a theatre, racquet-court, public bar, a floral hall, a pavilion, an Indian pavilion, and a tennis pavilion.

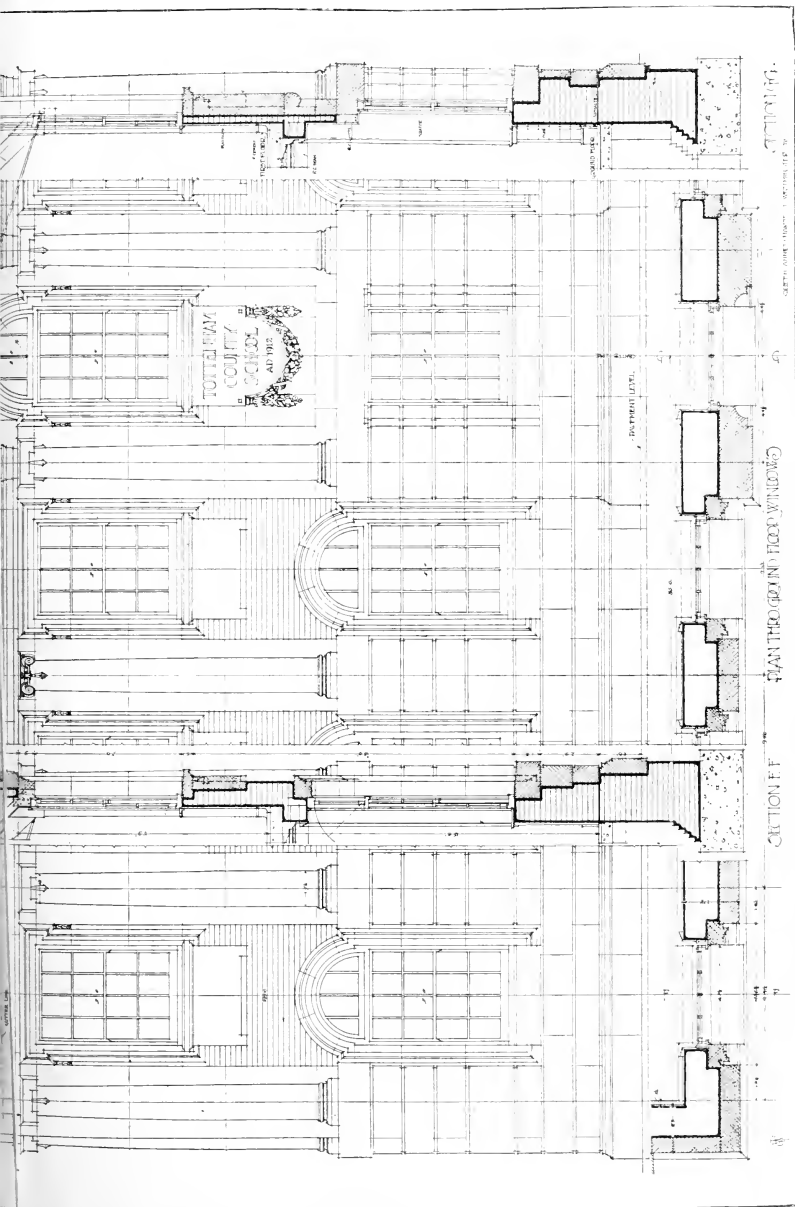
The new south transept of Selby Abbey is nearing completion. The design of the great decorated window, which almost fills the front of the south elevation, is now completed, and the side walls and buttresses are growing apace. It has been found, however, that it will be impossible to have the building ready for opening and dedication by the Archbishop of York on the date which had been originally fixed (June 18), and the ceremony has therefore been deferred until August. Mr. J. Olfert Scott, F.S.A., is the architect, and Messrs. Ullathorne and Sons, of Selby, are the builders.

A memorial to King Edward VII., subscribed for mainly by the Jewish population of the East End of London, was unveiled in White-chapel-road on Friday by the Hon. Charles Rothchild. The memorial, which has been designed by Mr. W. S. Fitch, is a drinking fountain, and the site on which it stands is immediately opposite to the London Hospital. It is in the form of a pyramid, and surmounting it is a bronze statue of Peace with an olive-branch, while at the sides are statues of Justice and Liberty. In front is a bronze medallion portrait of the late King, and at the back is an inscription.

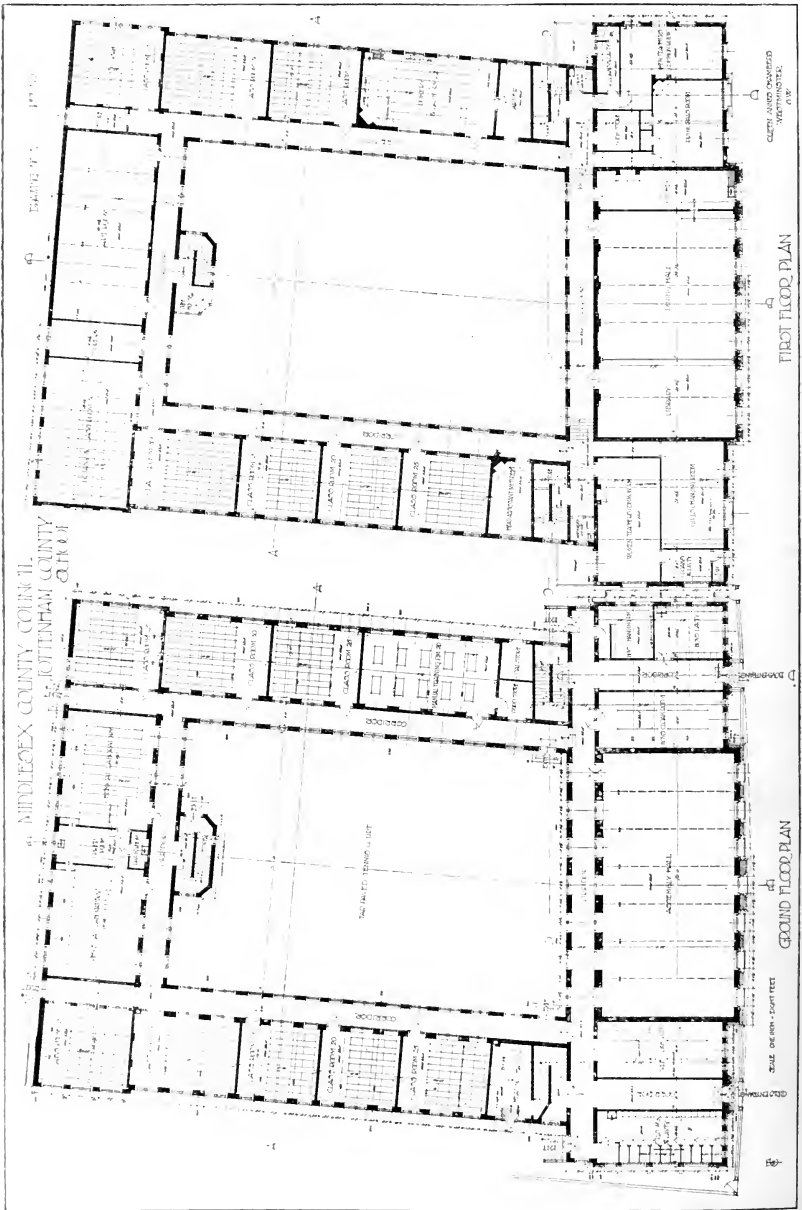
M.C.C. TOTTENHAM COUNTY SCHOOL

HALF INCH DETAILS FRONT ELEVATION





NEW COUNTY SCHOOL, HIGH ROAD, TOTTENHAM—Mr. H. G. Gurnall, Architect.



NEW COUNTY SCHOOL, TOTTENHAM—Mr. H. G. CROFT, Architect.

PARLIAMENTARY NOTES.

"SEWER" AND "DRAIN" DEFINED.—A Bill introduced by Mr. Harwood-Banner, M.P. for London, and Mr. J. V. T. St. John, Municipal Corporations and of the Urban District Councils Association, seeks to amend the definitions of "sewer" and "drain" in the Public Health Acts. The Bill provides that a drain shall be one constructed on private land by a landowner or builder, and that a sewer shall be one which has either been constructed by the local authority or has been laid along a public street with this important exception, however, that where a drain has been constructed by a builder or landowner and a sewer a private street—that is to say, along a street which has become a highway, but which is not repairable by the local authority—the drain is to be a sewer, provided it has been constructed to the satisfaction of the local authority.

THE NEW CITY AT DELHI.—Mr. MacCallum Scott asked the Under-Secretary for India on Tuesday what salaries or allowances, if any, were to be paid to the members of the committee appointed to advise the Government of India in the laying out of the new capital city at Delhi.—Mr. Montagu: The members of the committee, the architect, the town-planner, and living expenses, and the following fees for a five months' engagement:—Captain Swinton, 500 guineas; Mr. Brodie, 1750 guineas; Mr. Lutyns, 1500 guineas. The Secretary of State has been asked to return to the corporation of Liverpool the amount of 35,000 £. for the period of his absence.—Mr. MacCallum Scott asked the Under-Secretary for India whether the selection of Captain Swinton as a member of the committee to lay out the new capital city at Delhi was made at the request of the Government of India, or whether it was suggested by the Secretary of State and what special qualifications as a town-planning expert were possessed by this gentleman.—Mr. Montagu: The offer of service on the committee was made to Captain Swinton at the request of the Government of India, but the Secretary of State takes full responsibility for the appointment. It was thought desirable to associate with the professional members of the committee persons with experience in the administrative problems of a great city. Captain Swinton served for 11 years on the London County Council.—Mr. MacCallum Scott: May I ask the hon. gentleman whether this gentleman is the man who is chairman of the London County Council, and whether the Government have received any complaints as to political corruption from the other side? Mr. Montagu: The answer to the first question is in the affirmative, and the answer to the second question is—Not yet. (Laughter.)

A Conservative clubhouse is about to be built at the rear of the town-hall in Crickhowell, from plans by Mr. J. V. Richards, of London.

The Army Council have approved the purchase of a plot of land in Hornchurch, Romford, at £1,000, as a site for headquarters for the 2nd Essex Battery R.F.A.

Mr. Alfred J. Hall, of Cockermouth, has been engaged by the consulting engineers of the Crown agents as an assistant engineer in the construction department of the Federated Malay State Railways. Mr. Hall leaves for Penang to-morrow (Saturday).

The death is announced of Mr. E. T. Felgate, architect and surveyor, of York. He had been employed in the N.E. Railway architect's office, he held a position in the city surveyor's office for a number of years, and for a considerable period he held the position of surveyor to the Strensall Council.

Chevalier Farnhill, who has for a long time been engaged on a series of encaustic paintings for the decoration of the Roman Catholic Cathedral, Leeds, showed them last week to Cardinal Bourne. These mural decorations have been carried out by a special process, and the artist will be at once summoned to the Passion Sunday by Bishop Vaughan.

The health committee of Tynemouth Corporation have had before them reports from the borough surveyor and the medical officer of health with regard to the proposed acquisition of Balcwell Farm, near North Shields, and the construction of a hospital thereon. The medical officer of health suggested that the most advisable to build a permanent structure for ordinary infectious diseases at Balcwell, and to use the present hospital and site for smallpox cases. It was resolved that the council's scheme for acquiring Balcwell Farm be at once submitted to the Local Government Board, with the object of obtaining them.

STATUES, MEMORIALS, &c.

THE BACON MEMORIAL. A bronze statue, 6ft. in height, of Francis Bacon is about to be erected in South-square, Gray's Inn. The statue, which will be the work of Mr. F. W. Pomeroy, A.R.A., will stand on a pedestal of Portland stone, of Renaissance character, 5ft. 10in. high, placed on two shallow steps. Mr. Pomeroy's statue, which was exhibited in the Royal Academy last year, represents Bacon in the robes of Chancellor, holding in his left hand the case containing the Great Seal. The memorial will stand at the west end of the garden in South-square, almost opposite the principal entrance to the Inn. The statue will be unveiled on June 27 by Mr. Arthur Gill, the Treasurer of Gray's Inn.

MEMORIAL TO SIR CURZON WYLLIE.—The foundation-stone of the memorial to the late Sir Curzon Wyllie was laid on February 23 by the Hon. Sir Elliot Colvin, K.C. & L., Agent to the Government of India in Rajputana, at Ajmer, Rajputana. The memorial, which will be placed in a garden, will take the form of a fountain to provide water for man and beast, and is to be erected entirely of marble at a cost of Rs. 30,000. The design is the work of Sir Seintoun Jacob.

WATER SUPPLY AND SANITARY MATTERS.

TEDDINGTON. The urban district council has decided to proceed at once with a new sewerage scheme, which will involve an outlay of £35,000. Teddington was one of the constituent authorities of the Lower Thames Valley Main Sewerage Board, which comprised over twenty local authorities, and spent nearly £100,000 during a period of about six years, in various efforts to carry out a combined scheme of main drainage. On the dissolution of the board, over twenty years ago, Teddington executed a sewerage disposal scheme at a cost of over £40,000, in which the treatment was by chemical precipitation and land filtration. Owing to the difficulty of disposing of the sludge and defects in the sewers, the district council has been compelled to face this further heavy outlay. It is now proposed to abandon chemical precipitation in favour of the bacterial system. A special destructor will be constructed to burn the sludge as well as the refuse of the town.

A receiving order has been made in the case of William Thomas Reynolds, Sutton-road, Lough, Kent, described as architect and builder.

A full length statue of Edward VII in State robes, and of heroic proportions, is being executed for Huddersfield by Mr. Bryan Baker, of Chelsea.

The Chichester Rural District Council have decided to provide a water supply for the town in accordance with plans and specifications prepared by Mr. G. A. E. Jackson, M.B.E. &c., of London.

The new church of Holy Trinity, Southampton, was consecrated by the Bishop of Liverpool yesterday (Thursday). It is Decorated Gothic in style, and has been built from plans by Mr. Huon A. Matecar, of Liverpool.

A street-widening scheme at Castledelf, to cost £4,385, was the subject of an inquiry by a Local Government Board inspector at Castledelf on Tuesday, the local council having asked sanction to borrow the money. There was no opposition.

The marriage arranged between George Howard Ford, M.A., son of Mr. Thomas H. E. Ford, of Bromley, Kent, and Gertrude, second daughter of Mr. Ellis Marsland, M.S.A., of Painswick, Gloucestershire, will take place on April 18 at the Painswick Parish Church.

The Clydebank and District Water Trustees have obtained the estimate of the cost of completing their works at Burnbank. The estimate for the works alone is £20,045, that for the additional land required to raise the level of the reservoir is £3,440, for slow sand filters (including land) £1,100, and for filters of the type £1,500.

The works of the Hydro-Electric Power scheme at the Great Lake, Tasmanian, are nearly completed. Contracts for the first unit to develop 8,000 horse-power, and the transmission line for 20,000 horse-power, have been entered into with the British Westinghouse Electric and Manufacturing Company, Ltd., and with Messrs. Jans, Boving, and Co. for the steel pipes and turbine plant.

Our Office Table.

The London Museum was visited by the King and Queen on Wednesday, and, we suppose, will before long be open to the public. There are over 10,000 exhibits, and though no catalogue is ready, most objects are labelled. The annex will, perhaps, be the most popular part of the museum. There are the remains of the Roman boat found under the now demolished Aquarium at Westminster, lying on the bed of the river, 21ft. below the level of the present roadway. The interior of Wellclose square Prison, with the scold's bridle, and other implements of torture, will thrill the curious, and the museum has acquired Mr. John B. Thorpe's five models of Old London which were exhibited at the Franco-British Exhibition, and afterwards at the Festival of Empire.

A memorandum to the Ancient Monuments Protection Bill, presented in the House of Lords by Lord Southwark, explains that the measure acts upon the report of the Royal Commission on Ancient Monuments, that valuable monuments are being lost and urgently need preservation. By the Ancient Monuments Protection Acts, 1882 to 1890, an owner of a monument may, in certain conditions, obtain the guardianship of the Commission of Works for a monument. The present bill gives power to the Commission of Works, with the advice of an advisory board, to secure that historic monuments shall be preserved from destruction and decay. The great majority of these are already preserved in such buildings. These will be unaffected by the bill.

The orphanage to be provided by Lord Wandsworth's bequest will not be hampered for funds either in building or maintenance, the available residue to be allotted to the purpose being estimated at considerably over a million sterling. £25,000 may be expended by the trustees on a site, the erection of the buildings, their character, and any other additions being left to the trustees' discretion. The executors of the will are its two coheirs, which range in date before January, 1898, and August of last year, are Lord Wandsworth's "life long friend," Mr. Benjamin Thomas Lindsay Thomson, architect, of Lindsafire, Cope Hill, Wimbledon, and Mr. William Meppie, a City solicitor. To Mr. Thomson, Lord Wandsworth left all his freehold property, all debentures and shares in Anglo-American brewery companies, everything in his house at 10, Great Stanhope-street, everything in his stables at 70a, Curzon-street, and a further £1,000 on completion of the building of the orphanage. To Mr. Thomson he left all his debentures, stocks, and shares in English water companies.

At Tuesday's meeting of the London County Council the Improvements Committee recommended the acceptance of the offer of the London and Northern Estates Company (Limited) of a rent of £2,050 a year for a lease of 99 years of a site between Lincoln's Inn-fields and Kingsway. The site has frontages of about 72ft. to Lincoln's Inn-fields and 40ft. to Kingsway. It is proposed that the lease shall provide that the forecourt in Lincoln's Inn-fields shall not be built upon above the present level, and the available building area of the site will thus be 9,710 square feet. They further reported that the Crown Agents for the Colonies have offered a rent of £3,675 a year for a lease of 99 years of a site at the junction of Wood-street and Wood-street on the Westminster improvement area. The site has an area of about 21,000 square feet, with frontages of about 140ft. to Millbank and Wood-street, respectively. The offer was made subject to the intending lessees being allowed to construct vaults with pavement lights under the footways of Millbank and Wood-street, and the committee also had no objection to this proposal. The lessees also desire to have the first refusal of purchasing the freehold of the site, should the Council at any time decide to sell its interest in the land. It was recommended that the offer be accepted. The committee also recommended the Council to

accept the offer by Marconi's Wireless Telegraphs Co., Ltd., of £65,000 a year for a lease of the Gaiety Restaurant premises, Strand, for 99 years. All the recommendations were adopted.

In January last the London County Council asked the Board of Trade to appoint an arbitrator to settle the question which had arisen with the Stoke Newington Metropolitan Borough Council with regard to the paving works along the portion in Stoke Newington of the Council's tramways in Green Lanes, and S. Highgate road. The borough council was arranging to replace the currageway along the route, and proposed to use shallow hardwood paving for certain portions of the work. This material was considered by the County Council to be most undesirable for use in the tramway margins. The award of the arbitrator appointed by the Board, Mr. J. E. Waller, M.P.C.E., has now been issued. The findings of the arbitrator, as set out in the award, are as follows: (i) The requirement by the borough council of sectional wood blocks is not reasonable; (ii) the requirement by the borough council of wood blocks of a depth of 3in. is not reasonable. He further awards that the requirement by the borough council of any wood blocks other than solid wood blocks of a depth of 5in. is not reasonable. Under the terms of the award the County Council's costs of, and incidental to, the arbitration, and the fees of the arbitrator, which amount to £119, are payable by the borough council.

Sir Robert Hunter writes to the Press protesting against the proposal of a banking company to acquire and sweep away a group of old cottages on the east of the Market-place at Haslemere, and to replace them by a new office. The present buildings are, says Sir Robert, typical of West Surrey construction—walls of red brick, tiled roofs, and outlines not only broken up by gabled and conical chimneys. They are of great age, and their colouring is consequently rich and sober. They group with an adjoining long low cottage of three gables, not, fortunately, to be touched, which is said to have housed Queen Elizabeth on one of her journeys. Their demolition will spoil the pleasant lines out of harmony with its surroundings. Hitherto Haslemere, despite many changes, has preserved its rural character. Every unnecessary step which tends to modernise its features and to give it the aspect of a suburb is deplorable. All will agree with Sir Robert in his regret that a bank cannot develop its place from which it draws its custom. Mr. Walter Tyndale, the artist, and Sir Richard Garton, are petitioning the Postmaster-General, asking that the telephone wires, which, with their posts, disfigure the town, should be buried.

Replying to Sir Robert Hunter's protest, Mr. Thackeray Turner asserts that if the two projecting gables which form the centre of the three-part group of old cottages are cleared away, what remains will be of small value. Mr. Turner suggests that an architect could meet the requirements of the bank by pulling down the portion of the buildings next the hotel, retaining the projecting wing with its two gables, and the small end chimney behind them. He could then build upon the cleared site a good bank frontage, attaching the new to the ground floor under the projecting gables and making the new front of brick, keeping it quiet and in harmony with the old work.

A number of interesting portraits of craftsmen and artists, recently acquired by the trustees, have now been placed on exhibition at the National Portrait Gallery. They include: *Thiery*, *Manfred*, by R. G. F., 1830-1863; and *Sir Henry Irving*, 1838-1905, two drawings by Phil May; *Bernard Shaw*, 1849-1910, miniature painter, painted by himself in 1921; *Mary Tighe*, 1772-1810, poetess, miniature by Andrew Robertson (after G. Romney); *Robert Bloomfield*, 1766-1827, poet, miniature by Henry Bone, R.A.; *Hugh Chubbard Tardiff*, 1813-1871, P.C., 1825-1896, caricature painter, 1841 by his daughter, Miss Childers; *William IV.*, 1767-1837, pen and drawing attributed to Sir George

Hayter; *Sir James Paget*, P.R.C.S., 1814-1899, crayon drawing made in 1867 by George Richmond, R.A., for the Grillon's Club Series; *Charles James Matthews*, 1803-1878 (actor), drawn at Venice in 1827 by J. F. Leighton, R.A.; and *John Bramley*, 1774-1856 (singer), drawn by R. G. F. A last of *Charles Reade*, 1814-1884 (novelist), by Percy Fitzgerald, F.S.A., has been presented by the sculptor.

For the purpose of considering the town-planning scheme so far as it will affect Middleborough, a joint meeting of the streets, sanitary, and plans committees was held on Thursday in last week. The proceedings, which were private, ended by the joint committee approving the proposals placed before them by Mr. S. E. Burgess, the borough engineer. These last were embodied in a special report, and at the meeting the borough engineer explained his scheme by means of large plans for dealing with the important areas of the borough. The matter, it should be added, had also been considered previously by a conference of property owners and other interested parties. The decision will, however, have to be ratified by the town council.

At Santpoort, in Holland, the first lease of two stories, built of concrete, on the Edison system has been erected. The builders set up moulds, having the appearance of caissons, as high as the first floor. The moulds were filled with concrete. When time had been allowed for the concrete to harden, the mould was removed and the same process followed for the second story. In one month the house was finished, and it is claimed that building in this way costs about one-half of the sum that would be expended on a house put up in the ordinary way. One of the largest buildings ever constructed of concrete is in Buffalo. It has a height of ten stories, a length of 68ft., and a width of 160ft.

The proposals for the sewerage of Kilmarnock, estimated to cost from £20,000 to £30,000, are still unsettled. Two schemes by Messrs. P. H. McCarthy and R. Reed, Waterford, respectively, are before the corporation, who cannot make up their mind as between them. At their last meeting a proposal to employ independent expert advice to advise them as to the relative merits was brought forward, but was rejected, Council members, Messrs. Stallard, and Dwyer arguing that it would be a "waste of money" to call in an expert.

Mr. George H. Willoughby, F.R.I.C.A., of National Buildings, Manchester, calls attention, in a letter to the *Manchester Guardian*, to the costliness of schools in that city. He points out that for a number of years the designing and erecting of all new school buildings, and alterations to existing ones, have been done without the assistance of an architect, draughtsman only being employed, working under the guidance and instruction of the Director of Education, and under a clerk of works previously with the late School Board. The poverty of ideas consequent on such a system, together with the unavoidable lack of economy, results, he asserts, in local schools being erected (1) below the standard in design, arrangement, and finish, and (2) at an excessive cost compared with similar buildings in neighbouring towns. While the exclusion of all local architects from participation in the city's work has been a real grievance, he says, for years past, yet it is to the excessive costliness of the schools that he specially directs attention. It seems strange that while classes in architecture are provided at Manchester University and the Manchester School of Technology, yet those who have been trained in those institutions have no opportunities in their own city for designing schools. Mr. Willoughby contrasts the methods adopted by the Salford Education Committee, who invite local architects to submit designs for their work, and points out that the cost of erecting the Salford schools compares most favourably with those of Manchester.

The Ravenhead Sanitary Pipe and Brick

Company, Ltd., of Ravenhead, St. Helens, and Upholland, near Wigan, display, at the Rushmore Building Exhibition, rustic facing bricks, rustic sneek-walling, sand-faced bricks, etc., which attract attention and admiration. The "Ravenhead" rustic facing brick, although it is a recent introduction, has been remarkably well received, and is used over a wide area; but one has not to go far to see an example, as it is utilised in the Home for Women Students at the Manchester University, opposite the exhibition building. Mr. James Heaton, the managing director, informs us that "the company is already being subjected to the flattery of imitation, and during the last few days even the name 'Ravenhead' has been used as a description for bricks not manufactured by themselves. As 'Ravenhead' has been an unchallenged description of their manufactures for over thirty-five years, the only word that can be used for this action is that it is 'contemptible' and merits condemnation by all honest-thinking people." The sand-faced bricks, although they have only been introduced a few months, are being most favourably received; indeed, the demand is such that preparations are being made for extending their production.

Cement lumber is a new form, devised by an American inventor, of making use of cement which dispenses with the necessity and uncertainty of mixing the material. The lumber consists of slabs made in suitable lengths, and this material takes the place of wood on the outside of a house. The framework is erected in the ordinary manner and a metal tie is nailed on the studding. The latter is galvanised and has a sloped edge. The ends of the slab come up to this and are held in place by bending the edge of the ties, first to one side and then the other, over the ends of the slabs. Subsequently the whole surface is finished by a coating of cement which fills all the crevices and covers the exposed portions of the tie. The metal tie costs two cents a foot. A cement house put together with a screwdriver is yet another novelty which has been recently introduced in the United States. The system is designed for houses of a more or less temporary character, or for houses that are liable to be moved from point to point, such as a temporary workshop or a private garage. The system consists of blocks of concrete in which has been buried a wire spiral with an opening in the cement to take a screw-bolt. These slabs are bolted in position over a metal or wooden frame, and when it is desired to move the structure the bolts may be readily removed with a screwdriver, and the whole structure transported without any damage to any desired point.

Mr. John Simpson, a Crimean Veteran from the Scots Guards, for about forty years in the service of the Aberdeen Harbour Commissioners as inspector of works, and who retired a number of years ago, died on Saturday, in his seventy-sixth year.

At the last meeting of the Stoke of Peterborough County Council, plans by Messrs. Townsend and Fordham, architects, of Peterborough, were adopted for the internal rearrangement of the Sessions Court, Thorpe-road, Peterborough, and it was decided to invite tenders for the work, which is estimated to cost £1,500.

A Local Government Board inquiry into the application made by the Wallasey Town Council to borrow £6,120 for the purchase of land in Belvidere-road for the purpose of a recreation ground was held at the town-hall, Wallasey, on Thursday, before Major C. E. Norton, R.E. The land proposed to be purchased has an area of 42,768 square yards, the price being 2s. 10d. per square yard.

In the Court of Appeal, on Monday, before the Master of the Rolls and Lords Justices, Fletcher Moulton and Buckley, further proceedings in the appeal by Worcester College, Oxford, from a decision of Mr. Justice Jervis, in August last, dismissing an action against the Oxford Canal Navigation relating to the draining of the college meadow, were stayed owing to the parties having arrived at an agreement.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Birmingham Architectural Association. "Development of the Renaissance in Scotland," by Laurence Weaver.

Leicester and Leicestershire Society of Architects. Discussion on "R.I.B.A. Second Report on Reinforced Concrete," introduced by W. Keay, A.M.I.C.E., 8 p.m.

MONDAY.—Architectural Association. "Patriotism in Architecture," by C. F. A. Voysey, 7.30 p.m.

Royal Society of Arts. "Materials and Methods of Decorative Painting," Cantor Lecture No. 2, by Noel Hutton, R.S.A., 8 p.m.

Society of Engineers. "Lime-Concrete," by Gerald O. Cuse, 7.30 p.m.

TUESDAY.—Architectural Association Athletic Club. Smoking Concert and Reel, Pillar Hall, Victoria Station Restaurant, 8 p.m.

Royal Society of Arts. "British North Borneo," by Leonard Lovegrove, 8 p.m.

Institution of Civil Engineers. Further Discussion on "The Main Drainage of Glasgow," Paper to be read upon "The Works for the Supply of Water to the City of Birmingham from Mid-Waters," by Ernest L. Manservigi, Walter L. Manservigi, M.I.C.E., 8 p.m.

Institution of Municipal Engineers. Open Discussion on "The Site and Design of Street Gullies and Weirs," 7 p.m.

WEDNESDAY.—Royal Society of Arts. "The Whaling Industry of Today," by Theodore E. Selwens, 8 p.m.

FRIDAY (MARCH 20).—Glasgow Architectural Craftsman's Society. Business Meeting, 8 p.m.

SATURDAY (MARCH 30).—Architectural Association. Visit to New Wesleyan Church House, Westminster, (Lancaster and Rickards, F.R.I.B.A., Architects.)

Mr. J. Hunt Hedley, F.S.I. of Sunderland, has been elected president of the Rating Surveyors' Association.

The Duke of Connaught has announced his intention of giving a *recluse* to Bagshot Church in memory of King Edward.

The salary of Mr. G. Plimmer, surveyor and inspector to the Haywards Heath Urban District Council, has been increased by £30 per annum.

Negotiations for the purchase for the public of Porter's Grange, a fine old Tudor residence at South-on-Sea, having failed, the property has been sold to Sir Charles Nicholson.

Alterations are about to be carried out at Park Lodge, Antrim-road, Belfast, for the Earl of Shaftesbury, from plans by Mr. Henry Seaver, B.E. M.I.A.I., Scottish Temperance Buildings, Belfast.

Among the lectures announced to be given at the Royal Institution after Easter are two by Professor Reginald Blomfield, A.R.A., F.R.I.B.A., on "The Architecture of the Renaissance in France, 1494-1661."

An important scheme is on foot for the improvement of Doncaster as a shopping centre. This is the creation of a great business arcade with through communication, leading out of Frenchegate into St. Stephen's-gate.

The report of the Departmental Committee on Forestry in Scotland, with appendices and evidence, was published on Wednesday as a White Paper. The committee recommend the establishment of a demonstration area for the improvement of silviculture in Scotland, together with (1) a flying survey to ascertain the best forest sites and their approximate extent; (2) the appointment of an advising forest officer with at least one assistant; and (3) the expenditure of a limited number of State trial forests.

Mr. Stanford, an inspector of the Local Government Board, held an inquiry at the town-hall, Wilton, on Tuesday, into an application by the Wilton Town Council to borrow the sum of £1,500 for sewage-disposal purposes. The technical explanation that, at present the town-borough drains into the system of the Ribblesdale Sewage Works, being pumped into the receiving-chamber. A subsequent examination of the levels, however, had revealed the possibility of draining by gravitation, thus doing away with the pumping station, the cost of which involved a rate of 7d. in the £1. Mr. J. H. Blizard, of the firm of Lemon and Blizard, engineers, explained the details of the scheme, which was supported by Dr. Tubb Thomas, the county medical officer, Mr. G. R. Kendle, agent to the Earl of Pembroke.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as brief and as positive as possible, and should state clearly the points on which the claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications requiring illustrations or literary matter should be forwarded to the Editor of the BUILDING NEWS, Edinburg House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsent communications.

* * * Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and are sent, but are glad to do so when space permits mutually advantageous terms, which may be ascertained on application.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* * * Replies to advertisements can be received at the Office, Edinburg House, 1, Arundel-street, Strand, W.C., free of charge. It is forwarded under cover of advertiser an extra charge of 5s. per line is made. (See Notice at head of "Situations.")

RECEIVED, B. F.—W. H. S. and Son.—W. E. S.—G. T. C. and Co., Ltd.—O. E. Co., Ltd.—G. P. S.—G. G. T. C. and Co., Ltd.—R. L. L. Ltd.—W. R. L. Ltd.—W. H. S. and Son.—E. C. C. (A.)—B. N. D. C. L. W.

TRAFALGAR—No.

ASPER—Send, and we will see.

N. D.—We do not pay societies for reports of lectures.

Deco.—On right lines, but very costly. Besides, matter is not in a hurry to be put in a newspaper. The first of the Clock-makers.—The first firm named went out of business years ago. Whether the second still exists we do not know. All those whose names appear under "Clock-makers" in our "Directory" are good and reliable firms.

Mr. R. J.—I. We believe the wrought-iron casement you mean are still made; but we do not know. We have good accounts of the works of several Casement Ltd. See our "Directory" for others by other well-known makers under "Casements and Windows." 2 Yes.

ALF. WOOD.—All depends on the wording of the contract, on which no useful advice can be given except by a careful lawyer who has considered it. All we can tell you is you must get a printed statement of the issue of a writ, and suggest consultation of the solicitor we have named to another correspondent, if you have no one local.

W. H. KNIGHT.—The objection is, in our opinion, an unwarrantable one on the face of it, and your contention is a reasonable one. But the wording of the agreement may give rise to a question as to the company's action, and we advise you to consult a careful lawyer versed in building agreements. If you do not know one, we suggest Mr. Alfred Saxon, of Wetherfield, 80, and Baines, 1, Graham Buildings, Finsbury, E.C. 4, who has advised us for many years.

TRADE NOTES.

Mr. Alfred Saxon Snell's address is now 9, Benington-street, Manchester-station W.

Under the direction of Mr. Harold R. H. per architect, Ipswich, Boyle's latest patent "A" pattern Ventilators have been applied to the theatre Haywards.

The adits to the Farnham Workhouse are being supplied with Shorland's patent Manchester grates by Messrs. E. H. Shorland and Brocher, Ltd., of Fallowfield, Manchester.

Mr. W. J. Fennell, F.R.I.B.A., Scottish Provident Buildings, Belfast, has taken into partnership his chief assistant, Mr. Harold S. Clarke, and the style of the firm will be Messrs. Fennell and Clarke.

We are informed that Messrs. Sopers and Carter, of Paddington-green, the well-known tinsmith and barrow makers and scaffolding contractors, have purchased the old-established business of Messrs. Ell and Co. They are transferring the business recently carried on by Messrs. Ell and Co. at Bowdler-street, Paddington, to their Paddington-green yard, but are keeping on and enlarging the yard at Kenning-road.

Messrs. J. B. Joyce and Co., Ltd., Whitechapel, Salop, have received instructions to make a large clock with four illuminated dials and striking the hours and quarters, for the memorial clock-tower about to be erected at Grange-over-Sand. The clock will contain all modern improvements, including gravity escapement and compensated pendulum. The same firm are now making a clock with four dials for the Bill's Head Hotel, Bangor, which also has the gravity escapement and compensated pendulum.

CHIPS.

Mr. A. H. Swanson of Inverleith has been appointed borough surveyor of Linlithgow.

The West Riding County Council have made the following increase of salaries: Mr. J. Vickers Edwards, county architect, £190; Mr. T. V. Steele, land agent, £50; Mr. J. Stuart, educational agent, £50.

Confectioners' and restaurant premises in Queen's-road, Clifton, Bristol, have just been reconstructed from plans by Messrs. La Trobe and Weston, of that city. The contractors were Messrs. Haynes and Son, also of Bristol.

New parochial buildings are about to be built at Warwick-on-Tweed. The general contractors are Messrs. G. & S. of Newcastle-on-Tyne, and the cost will be £23,000.

Mr. Prose, the President of the Board of Education, took part in the opening of the new grammar school at Watford on Wednesday. The school is in Cassobury Park, and 425,800 has been made in a clock with four dials for £350 boys, and there are nine acres of playing-fields. Messrs. Russell and Co. are the architects.

Extensive alterations are about to be made to the Ambrose Cinematograph Hall, Kingsland, E.C. 1, by the plans of Messrs. Frank Maicham and Co. The same firm of architects are also carrying out alterations and enlargements to the Broadway Cinematograph Theatre, Waltham Green.

The action begun in 1908 by the Johannesburg Municipal Council against Messrs. D. S. Swartz and Co., 1902, Limited, and others for the payment of sums amounting to over £400,000 in respect of the non-fulfilment of contracts for the installation of gas and electric plant was settled in the Court of Session, Edinburgh, on Wednesday, by the payment of £100,000 to the plaintiffs.

LATEST PRICES.

IRON.

Steel Joists, Belgian and German saw maker, London Per ton	£5 12 6	to	£6 17 6
Scotch, 10 in. deep	7 0 0	to	8 0 0
Wrought-Iron Girder Plates	7 0 0	to	7 5 0
Scotch Girder Plates	7 2 6	to	8 2 6
Do, Locomotive Flat, Round, or Square	20 0 0	to	20 0 0
Do, Wheel	5 15 0	to	5 17 0
Boiler Plates, Iron	6 0 0	to	8 15 0
Do, South Staffs	6 0 0	to	8 15 0
Boat Sheathing	10 0 0	to	10 0 0
Do, Angles 10 in., Ties 20 in. per ton extra			
Builders' Hoop Iron, for bonding, &c.	£9 15s.	to	£9
Do, 10 in. deep, 10 in. wide	£10 15s.	to	£10 15s.
Galvanised Corrugated Sheet Iron	No. 18 to 20	No. 22 to 24	
8 ft. to 8 ft. long, inclusive	Per ton	Per ton	
Do, gauge	£13 0 0	to	£13 10 0
Do, 24 in.	13 0 0	to	14 0 0
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OTHER METALS.

Spelter, Silesian	Per ton £26 0 0	to £28 5 0
Lead Water Pipe, Town	23 10 0	—
Country	21 5 0	—
Lead Ball Pipe, Town	22 10 0	—
Country	22 5 0	—
Lead Pipe, Tinned inside, Town	22 10 0	—
Country	21 5 0	—
Lead Pipe, Tinned inside and outside	25 0 0	—
Town	25 15	—
Country	23 10 0	—
Composition Gas-Pipe, Town	23 10 0	—
Country	21 5 0	—
Lead Soil-pipe (40 lb. per cwt.)	21 5 0	—
Country	21 5 0	—
(Over 42 lb. per ton extra.)		
Lead Sheet, 16 lbs. per sq. yard	24 15 0	—
Copper Sheets, sheathing &c.	81 0 0	87 10 0
Copper, British Cake and Ingot	88 15 0	69 5 0
Tin, Birmah	165 10 0	169 10 0
Do., Banca	165 10 0	169 10 0
Do., Australian	191 10 0	192 0 0
Do., Bars	17 10 0	187 19 0
Do., Cast	19 10 0	—
Sheet Lead, Town	20 10 0	—
Country	20 15 0	—
Galvanised White Lead	20 10 0	—
Refined Red Lead	20 0 0	—
Sheet Zinc	35 0 0	—
Old Lead, against new	10 10 0	—
Tin	10 10 0	—
Set Nails (per cwt. basic, untinned)	0 11 0	—

TIMBER

CONSTRUCTION.				
Per St. Petersburg Standard (100—12ft. by 1 in. by 1 in.).				
Yellow Pine Deale, Quebec,	1st quality	234	0	412
" "	2nd	24	20	28
" "	3rd	6	0	18
Spruce Deale, St. John's	1st quality	7	0	18
" "	Miramichi	8	0	10
" "	2nd	6	0	8
Red Deale, Archangel 1st quality	20	10	0	21
" "	2nd	16	0	17
" "	3rd	11	0	12
St. Petersburg—				
" "	1st quality	16	0	17
" "	2nd	13	0	14
" "	3rd	10	0	12
" "	Wylburg & Gubenburg	10	0	17
" "	Geffa, Gobenburg,	10	0	17
" "	and Sankt Petersburg	10	0	17
White Deale: Crown	10	0	0	12
" "	Seconda	10	0	10
Forest Pine: White Deale	8	0	0	8
" "	1st and 2nd quality mixed	8	0	8
" "	1st, 2nd, and 3rd quality mixed	8	0	8
" "	Random	11	0	11
Pitch Pine: Prime Deale and	17	0	0	20
Board	18	0	0	20
Long Pine	11	0	0	12
Per foot super, as lin.				
Yellow Pine Logs (wavy bark)	0	2	0	0
Pitch Pine Logs	0	2	0	0
Oak: Quebec Logs	0	2	0	0
Black: Austrian Wamoot	0	2	0	0
" "	0	2	0	0

FURNITURE AND HARDWOODS

Oak: Burmese, per load (50c. ft.)	£20	0	0	0	£21	10	0
" Java "	"	15	0	0	"	18	0
							Per cubic foot.
Oak Plank: U.S.A., imported.		0	9	0	2	8	
" Boards "							
" " "	Prm.	0	2	4	"	0	2
" " "	1 st Md.	0	1	0	"	0	0
" Sequoia (California Redwood)	"	0	3	0	"	0	3
Burch: Quebec logs	"	0	1	6	"	0	2
" " "	1 st Md.	0	1	0	"	0	0
" Austrian Wainstead	"	0	7	0	"	0	8
Wainst: Prime boards & planks	"	0	5	0	"	0	8
" " "	1 st Md.	0	3	0	"	0	0
Greenheart: Hewn "	"	0	6	0	"	0	4
Cedar: Cuzar box "	"	0	3	8	"	0	4
Sisal: Wainst. imp. eawn "	"	0	3	8	"	0	4
" " "	prime	0	2	3	"	0	2
Oak: Imp. sawn boards,							
prime		0	1	10	"	0	2
Mahogany: Siam, Donghai "							Per foot of lin.
" " "	"	0	5	4	"	0	0
" " and Honduras "	"	0	5	4	"	0	0
" " African, Assam, &c.	"	0	5	4	"	0	0
" " Large and Benue "	"	0	3	36	"	0	0
" " Bechou and Cape "	"	0	3	36	"	0	0
" " " "	Leper	0	0	21	"	0	34
" " " "	"	0	0	11	"	0	0
" " " "	"	0	0	10	"	0	2
Satinwood: West Indian "	"	7	0	0	"	0	0
Rosewood "	"	7	0	0	"	11	10

STONE •

Red Mansfield in blocks	per foot cube	£6	2	3
Barley Dale, ditto	"	"	2	4
Red Corsbich, ditto	"	"	0	2
Cloesburn Red Freestone, ditto	"	"	0	2
Arnsler, ditto	"	"	0	10
Greenishalt, ditto	"	"	0	10
Chalkmark, ditto (in truck at Nine Elms)	"	"	0	1
Arnsler, ditto	"	"	0	1
Ditto ditto Sin. sawn both sides, landings, random sizes	per foot emp.	£3	8	8
Ditto ditto Sawn, random sizes	"	"	0	1
Random sizes	"	"	0	1
* All F.O.R. London.				
Rath Stone, delivered on rail at quarry stations	per foot cube	£1	0	0
Delivered on road waggon, Paddington Depot	"	"	0	6
Ditto ditto	"	"	0	6
Beer Stone, delivered on rail at Station	"	"	0	1
Station	"	"	0	1
Portland Stone, in random blocks of 90ft. average	"	"	0	1
Delivered to railway depot	Brown Bed.	White Bed.	Base Bed.	

SLATES

SIZES			
	In. 10.	8.	d.
Blue Putmadco	20x10.13	2	6
" " "	" " "	16	8
" " "	" " "	12	6
Blue Bangor	20x10.13	2	6
" " "	" " "	20	12
" " "	" " "	13	17
First quality	20x10.13	0	0
" " "	" " "	20	12
" " "	" " "	13	18
" " "	" " "	18	6
" " "	" " "	7	6
Eureka unloading		d.	d.
" " "	20x10.16	17	6
" " "	" " "	20	12
" " "	" " "	18	7
" " "	" " "	18	10
" " "	" " "	13	5
" " "	" " "	16	9
" " "	" " "	10	5
Permanent green	30x10.11	13	8
" " "	" " "	18	10
" " "	" " "	9	13
" " "	" " "	16	8
" " "	" " "	12	6
" " "	" " "	12	11

BRICKS

<div> <div></div> <div>(All prices net.)</div> </div>		
Hard Stocks	£1 6	8 per ton, 1,000 alongside, in river
Rough Stocks and		
Picked Stocks for	1 5 0	
Facings	2 10 0	" at railway station.
Best Blue Pressed		
Pressed Wire Cuts	1 18 0	" "
Red Wire Cuts	1 14 0	" "
Best Farinall Red	1 12 0	" "
Best Red Pressed		
Runion Facings	5 0 0	" "
Best Blue Pressed		
Staffordshire	2 15 0	" "
Ditto Bullnose	4 0 0	" "
Best Scambridge		
Fire Bricks	2 14 0	" "
27" Best Red Ac-		
crington Plastic	4 10 6	" (Net, delivered in full truck loads in London)
Facing Bricks		Per 1,000
34" Acerrington Best Red Plastic Facing Bricks		£2 10 0
34" Ditto Second Best Plastic ditto		0 0 0
34" Ditto Ordinary Second Bricks		1 11 0
34" Ditto Best Blue and through		1 17 0
34" thickest part		2 0 0
34" chimney Bricks fit for inside work		2 6 0
34" 1 1/2 ditto ditto ditto		2 0 0
34" Best 3/4, Oroland and Bevel Jambos; Octagons;		
21" 2 1/2" 1 1/2" radius Bullnoses; Stock patterns		3 7 0
Acerrington ditto		2 0 0
Ditto		0 0 0
Acerrington "Amber Arches" —		
3 course deep, 4 1/2" soffit, per foot opening		0 1 3
4 1/2" ditto ditto ditto		0 1 3
6 ditto 4 1/2" ditto ditto ditto		0 2 1
6 ditto 4 1/2" ditto ditto ditto		0 2 6
6 ditto 4 1/2" ditto ditto ditto		0 2 6
4 ditto 6" ditto ditto ditto		0 2 1
6 ditto 6" ditto ditto ditto		0 3 3
6 ditto 6" ditto ditto ditto		0 3 3
Net free on rail, or free on boat at works.		

GLAZED BRICKS.*

WARD GLAZES. (PER 1,000.)										
White, Ivory, and Best.			Blaz. Glazed.			Buff and Cream.			Best. Other Colours.	Second Colours.
Stretchers	£10 17 6	£9 7 6	£13 7 6	£13 7 6	£2 6 6	£10 17 6	£10 17 6	£10 17 6	£10 17 6	£10 17 6
Head-ends	17 7 6	8 17 6	11 17 6	16 17 6	15 17 6	6 17 6	10 17 6	10 17 6	10 17 6	10 17 6
Queens, Bullnose, and 4-in. Flats	13 17 6	13 17 6	16 17 6	16 17 6	10 17 6	14 17 6	14 17 6	14 17 6	14 17 6	14 17 6
Double Stretchers	19 7 6	19 7 6	19 7 6	19 7 6	23 17 6	16 17 6	16 17 6	16 17 6	16 17 6	16 17 6
Double Headers	19 7 6	19 7 6	16 17 6	16 17 6	19 17 6	16 17 6	16 17 6	16 17 6	16 17 6	16 17 6
One side and two ends, square	17 7 6	16 17 6	20 7 6	20 7 6	24 17 6	17 7 6	17 7 6	17 7 6	17 7 6	17 7 6
Two sides and one end, square	18 7 6	16 17 6	21 7 6	21 7 6	25 7 6	18 7 6	18 7 6	18 7 6	18 7 6	18 7 6
Spilays and Squires	16 17 6	14 7 6	20 7 6	20 7 6	23 7 6	16 17 6	16 17 6	16 17 6	16 17 6	16 17 6
Plinths and Bull-nose Ends, Stretchers and Headers	8d. each	8d. each	6d. each	6d. each	6d. each	6d. each	6d. each	6d. each	6d. each	6d. each
Double Bull-nose, Round Ends, Bull-nose Stops, and Bull-nose Ends	8d. each	8d. each	6d. each	6d. each	6d. each	6d. each	6d. each	6d. each	6d. each	6d. each
Rounded Internal Angles	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each
MOULDED BRICKS.										
Stretchers and Headers	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each
Internal and External Angles	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each
Cill Bull-nose, Stretchers and Headers	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each	8d. each
Majolica or Soft Glazed Stretchers and Headers	£21 17 6	£21 17 6	£21 17 6	£21 17 6	£21 17 6	£21 17 6	£21 17 6	£21 17 6	£21 17 6	£21 17 6
Commons such as Queens and Bull-nose	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6
Commons such as Circular and arch bricks	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6	26 17 6
of single radius 8 in. per 1,000 over above	Not exceed	Not exceed	Not exceed	Not exceed	Not exceed	Not exceed	Not exceed	Not exceed	Not exceed	Not exceed
list for their respective kinds and colours	ing 100	ing 100	ing 100	ing 100	ing 100	ing 100	ing 100	ing 100	ing 100	ing 100
Best Ground Blue Glazed or other colours	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6	44s. 3 17 6
21. each	21. each	21. each	21. each	21. each	21. each	21. each	21. each	21. each	21. each	21. each
Stretchers cut for flowers and Nicked Double Headers	£2 17 6	£2 17 6	£2 17 6	£2 17 6	£2 17 6	£2 17 6	£2 17 6	£2 17 6	£2 17 6	£2 17 6
£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.	£2 per 1,000 extra.
These prices are carriage paid in full trade loads to London stations.										
Thames and Pit Sand	7	0	per yard, delivered							
Thames Ballast	5	6	per yard, delivered							
Best Portland Cement	10	0	per ton, delivered							
Best Ground Blue Glazed	10	0	per ton, delivered							
Exclusive of charge for sacks.										
Grey Stone Lime	11s. 6d.	per yard, delivered								
Stourbridge Fireclay in sacks	27s. 0d.	per ton at ry. ad.								

TILE

	a.	d.	Delivered
Plain red roofing tiles	42	0	per 1000 at 17 1/2
Brick pattern tiles	42	0	per 1000 at 17 1/2
Broseley tiles	52	0	per 1000
Ornamental tiles	52	0	per 1000
Brick pattern tiles	52	0	per 1000
Rusbon red, brown, or brindle	4	0	per doz.
du. (Edwards)	57	6	per 1000
Ornamental do.	60	0	per 1000
Hip tiles	4	0	per doz.
Valley tiles	3	0	" "
tiles—Plain tile (Peake's)	46	0	per 1000
tiles—Perfect	46	0	per 1000
Ornamental do.	46	0	per 1000
Hip tiles	3	1/2	per doz.
Vine tiles	3	1/2	" "
Rosemary brand plain	46	0	per 1000
tiles	60	0	per 1000
Ornamental do.	60	0	per 1000
Hip tiles	4	0	per doz.
Valley tiles	3	0	" "
Staircase tiles—Red	42	0	per 1000
or Brindled tiles	42	0	per 1000
Hand-made sand-faced	42	0	per 1000
Hip tiles	4	0	per doz.
Valley tiles	3	0	" "
"Hartzell's" brand plain tiles	50	0	per 1000
sand-faced	47	6	" "
Pressed	50	0	per 1000
Ornamental do.	50	0	per 1000
Hip tiles	4	0	per doz.
Valley tiles	3	0	" "

OIL

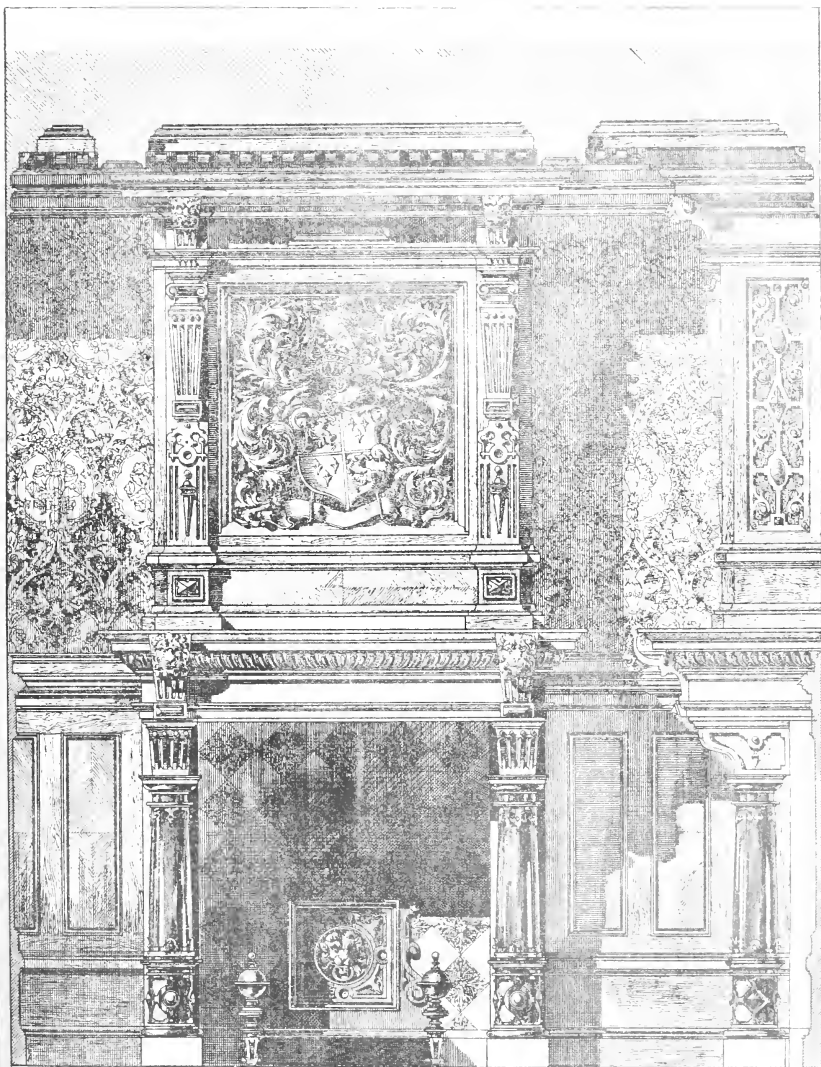
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CLASS (IN CRATES)

GLASS (IN CRATES).				
English Sheet Glass:	16os.	21os.	26os.	32os.
Fourth	1jd. ...	2jd. ...	3jd. ...	4jd.
Third	2jd. ...	3jd. ...	4jd. ...	5d.
Fluted Sheet	2jd. ...	3jd. ...	6d. ...	6jd.
Hartley's English Rolled Plate:	1in.	3/4in.	1in.	
	2d. ...	3jd. ...	2jd.	
Figured Rolled, and Repoussé:			White.	Tinted.
			3jd. ...	6d.

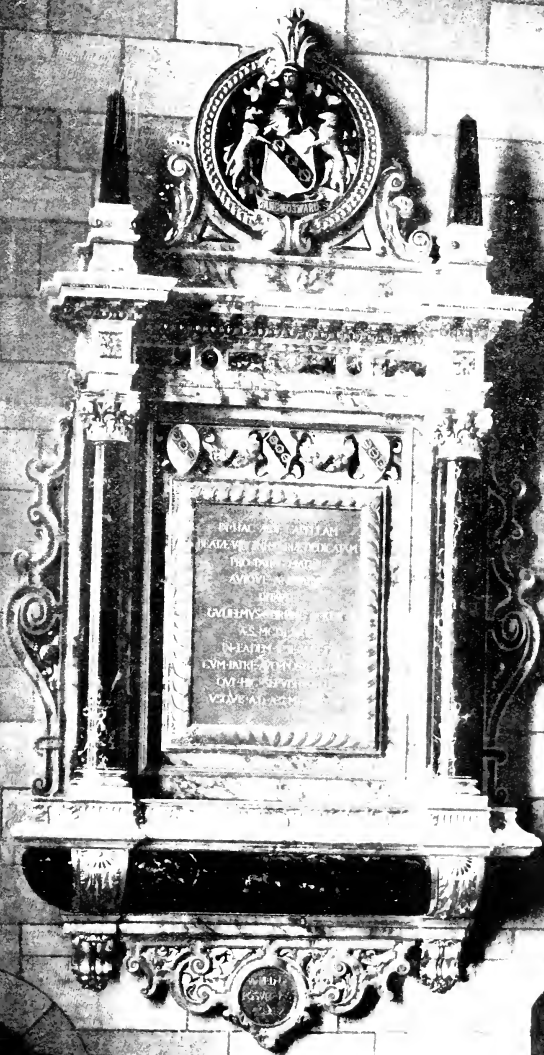




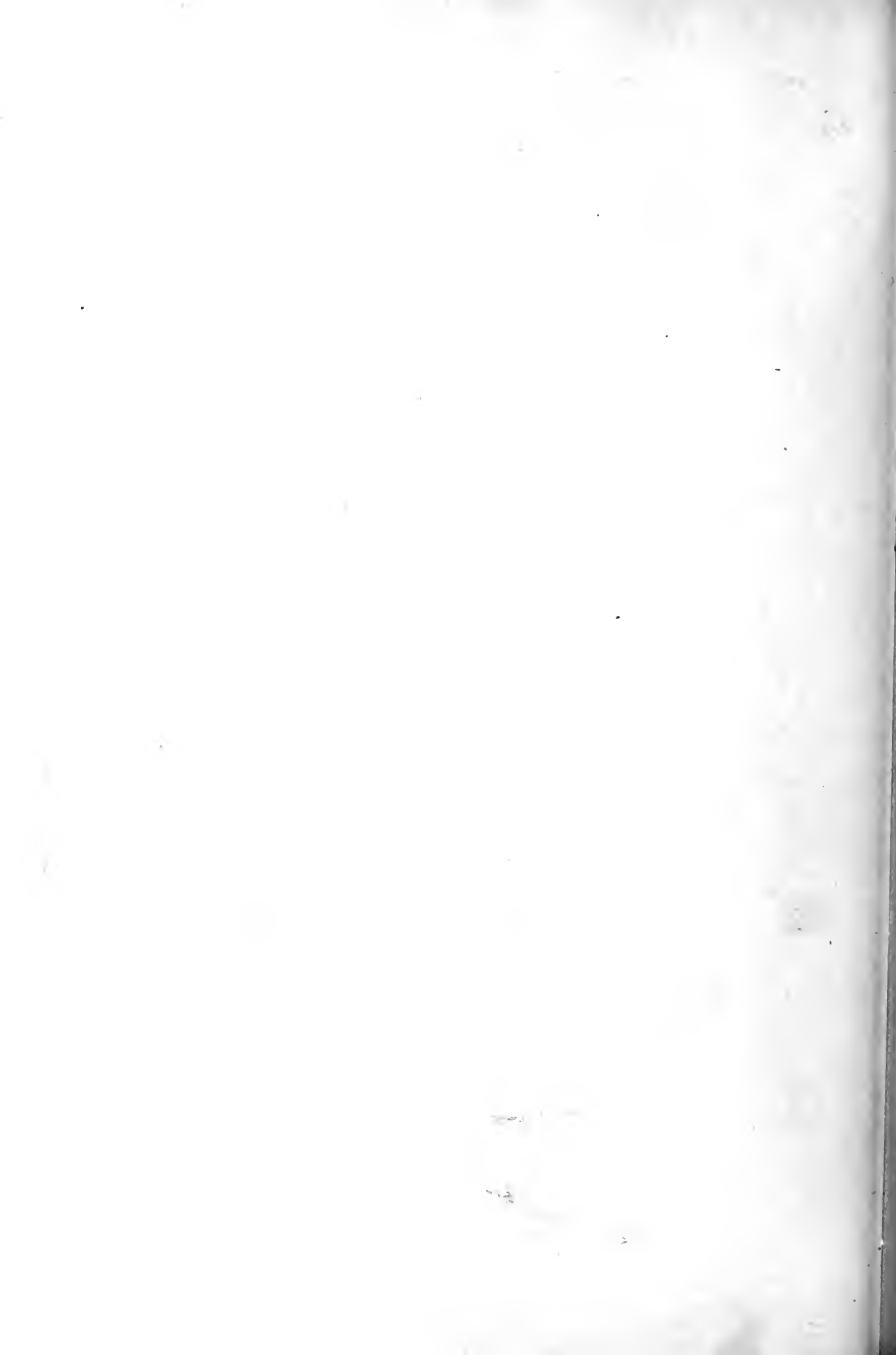


CHIMNEY PIECE FROM GODESBERG. DESIGNED BY KAYSE AND DAN ZHITMANCH.





SEIR MEMORIAL, DUNBLANE CATHEDRAL



THE BUILDING NEWS AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.C.

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SPECIALIST OR SUB-CONTRACTOR?

However carefully a building contract may be drawn up, and although full provision is made for its working out well upon normal lines, yet unexpected events may arise, raising questions of law, as to the position of the various parties interested. Possibly such a case as the failure of the contractor before the job is completed, and the consequent change in the responsibility of the building owner as to certain classes of creditors, could be dealt with there, but it would be a matter of some difficulty. The result is that when such an event occurs, the law has to settle the rights and responsibilities of those concerned upon a consideration of all the facts, as well as of the contract.

One point that has occurred lately somewhat frequently is as to the position of a trader who has supplied goods or work to the job by the order of the architect. It is very usual to set down such a trader as a sub-contractor, and to provide for his payment upon architect's certificate as through the contractor. But supposing the contractor fails, and does not pay this account, even after he has received money from the building owner for that purpose, what then is the trader's position? Is he bound to lose his money because the contractor fails, or can he sue the building owner as the real principal in the transaction? Obviously the answer turns upon the point whether such a trader is in fact and in law a sub-contractor, or is what is called a specialist—i.e., a trader who has supplied special goods to the job on a separate order. Many architects regard all such traders as sub-contractors, and they are often so classed in the building contract itself. But that does not determine the legal relation of the parties to each other, which has therefore to be decided, where necessary, upon general principles of law as applied to the facts found in each case.

Some guidance upon this matter can be gained from the case of *H. Young and L.C. Ltd., v. White* (*Times* Law Rep. V.I. xxviii., p. 87), decided by Mr. Justice Coleridge, October 31 last; especially as, in the considered judgement delivered, some previous similar decisions were followed. It may be noted, however, that these rulings of single judges at Nisi Prius are not binding upon the Court of Appeal, nor are they, strictly speaking, upon other judges of First Instance. The plaintiffs were specialists in steelwork, and they sued the defendant, as building owner of a site at Chelsea, for £150 due for work and materials. The defendant's architects were Elms and Junip, and the contractor was Nightingale. In the usual way, the archi-

teers, in July, 1910, sent the plaintiffs drawings, and invited them to tender for certain steelwork on their job of erecting new buildings. The plaintiffs, not then even knowing who was to be the contractor, sent in a tender for £220. They had had nothing to do with the builder, and from first to last they never knew the contents of the building contract. In September the architects wrote the plaintiffs, giving the builder's name, and saying they had instructed him to place the order for this special work with them. This was done on the day of signing the contract, which contained the usual clauses dealing with sub-contractors, and provided that a sum of £250 should be included for this constructional steelwork. It appears that the contractor tried, but failed, to get terms as to discount, etc., from the plaintiffs before giving out their order. They then wrote the architects, saying the work was in hand, and asking for the order, which they got later from the builder, for the steelwork, in accordance with their estimate and drawings sent to the architects in July. So the job went on, and in January, 1911, the architects sent the contractor a certificate for £700, saying it included £150 for the plaintiffs. They also wrote plaintiffs to this effect, enclosing them a certificate addressed to the contractor for £150. A few days later, Nightingale, the builder, called his creditors together, and went into liquidation, without having paid over this money. So the plaintiffs now sued the building owner for that amount, which, of course, raised the question of his liability for the whole of the account.

Now the question in this case clearly turned upon the facts as to what contract was made between the plaintiffs, as specialists in steelwork, and the defendant, or his agents the architects, as building owner. It was not primarily affected by the building contract for the job, to which the plaintiffs were, of course, not parties, and of which they never heard until afterwards. The judge went fully into the various ways in which the point can be put. The plaintiffs' right to recover depended upon whether the contract for this work was made (1) between the plaintiffs and the architects as agents for the defendant as building owner; or (2) between the plaintiffs and the contractor as agent for the defendant; or (3) between the plaintiffs and the contractor prima facie as principal, but really as agent for an undisclosed principal, who is, and must be, the defendant, as building owner; or (4) as between the plaintiffs and the contractor, both parties as principals. He held that it was only upon proving his case upon the last alternative, viz., that the contractor

ordered the goods and work as principal himself, that the defendant could succeed in supporting his defence. The only other way in which the defendant could escape liability was by showing that the plaintiffs had made their election to deal with the agent, whether the architect or the contractor, so that he was precluded from recovering afterwards to the principal for payment. But this argument was not really pressed by counsel, the fact being only used to show that the contract was substantially not agent, but principal. The judge held, however, that the mere fact that the plaintiffs entered the names of the contractor in their books, as is usual in such transactions, up to the time of his bankruptcy, and even applied to him for payment of the £150 which he had received on their account, was not sufficient evidence of such an election by them as would relieve the defendant from liability as the principal contracting for the work.

Reference was made to the case of *Hobbs v. Turner* (xxvii. *Times* Law Rep. 235), where the contract and facts were the same as here, except that there the architect had sent the specialist a certificate addressed not to the contractor, but to the building owner himself. The judge held that such a difference in the name of the addressee could not alter the legal position of the parties. The usual law, as applied to the facts of each case, must settle the rights and responsibilities of the concerned, and not those of the architects or other agents acting in the matter can operate to determine the result. The second and more recent case mentioned was that of *Central Manufacturing Co. v. London County Council* (xxvi. J. P. 203) before Mr. Justice Channell, who, upon similar facts, decided in favour of the plaintiff on the ground that he was a specialist, and not a sub-contractor, and so could recover payment from the building owner for work done through the architects as his agents. It is, of course, quite clear that by merely so styling a trader who supplies special work or goods in a building contract, an architect cannot turn him into a sub-contractor, so as to relieve the building owner from all liability. This can be done by an architect wishing to protect his client if the specialist is given proper notice that he is giving orders to, and dealing with, the contractor for the job, and that as well as the architect for payment. In this case, the architects as agents for their client, the building owner, had given him away from the beginning by asking for an order for the building work on principle, and letting him afterwards claim a right to settlement as the plaintiffs' agent for payment for their

money. The fact that the architects passed on the giving-out of the actual order to the contractor, who was only an agent for the defendant, made no difference, especially as the plaintiffs only accepted it as in accordance with the architect's original letter. The clauses in the building contract as to sub-contractors, which, of course, the plaintiff had never signed, nor seen, nor had any notice of, had nothing to do with the separate contract for stonework made between plaintiffs and the architect or the contractor, both here acting as agents of the defendant as building owner.

The Judge went rather fully into the whole position of the building owner upon these transactions. He pointed out that if the specialist does the work for less money than the prime cost provided for, the owner gets the benefit of a reduction. If more has to be charged, it is a liability for the contractor, and he loses an extra under the building contract. Thus the building owner either takes the profit or suffers the loss, and the builder gets his profit in the whole enterprise. In this case the owner had himself, through his agents the architects, chosen the specialist, and so he did not have a real interest in the work he done. It is true that the complex form of the building contract seems to show the contractor apparently acting as principal throughout. But though he does so in regard to sub-contractors, which he has done in the past, yet where specialists are concerned, he merely acts as agent for the building owner, who is the real principal. Seeing that contractors' failures have, of late years, unfortunately been somewhat frequent, and in view of those of olden times, it would be as well if architects, for the purpose of protecting their clients, the owners, against the risk of having to pay twice over, were to consider the legal differences between a sub-contractor and a specialist before it is too late, and to save them from loss and litigation.

ESTIMATING FOR REINFORCED-CONCRETE WORK.—VII.

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REINFORCED-CONCRETE PILES.

Casting Reinforced Concrete Piles.—Reinforced concrete piles are usually cast horizontally in wooden moulds, the sections of which are held together with iron clamps, so that they may be easily removed and re-assembled for re-use. The skeleton framework of steel reinforcing-irons, after being securely hooped and bound together and having a cast-iron or steel shoe attached, is rigidly suspended within the mould, which is then carefully filled in solid with concrete. The concrete should be laid in small quantities, and well worked around the reinforcement.

When reinforced concrete piles are cast vertically, one face of the mould is left open. A cast-iron or steel pile-shoe is inserted at the bottom of the mould, the vertical rods and clamps fixed in position, and secured at short intervals with steel hoops and ties. A small quantity of well-wetted concrete is then rammed into position, and, as the work proceeds, the open face of the mould is closed with narrow boards about 1 in. deep, fixed in grooves in the sides of the upright mould. Very long piles cannot be readily cast vertically. This method is also more expensive than for piles cast horizontally; but the resultant concrete usually possesses a slightly greater density.

All the concrete on each pile should be completely consolidated.

Formwork for Pile Moulds. The faces of the pile moulds should be, where wash, for

played over with a solution of soap to prevent the concrete adhering to the mould, and allowing it to be readily removed after setting.

Removal of Moulds. The sides of the moulds must be removed after the concrete has been allowed to set for forty-eight hours.

Setting of Concrete Piles. All reinforced concrete piles should be made and set out for at least seven weeks before being planted in position and driven into the ground.

Aggregate for Concrete Piles. Concrete piles are usually made with fine gravel, shingle, or crushed-granite aggregates, screened to pass 3 in. mesh, but not to pass 3 1/2 in. mesh. The proportions of cement, sand, and aggregate generally adopted are 1 to 1 1/2 concrete (1: 1 1/2: 3), 1 to 1 concrete (1: 1: 2), and 1 to 3 concrete (1: 1: 2). The strength of granite concrete is about 25 per cent. greater than that of ordinary gravel concrete.

Weight of Reinforced Concrete Piles. The approximate weights of reinforced concrete piles are as follows:—

12 in. by 12 in. concrete square piles, including 10, 14, and 18 per cent. of steel reinforcement.	Per ft. run.
12 in. by 12 in. ditto ditto	196
14 in. by 14 in. ditto ditto	212
18 in. by 18 in. ditto ditto	276

Driving Concrete Piles. Reinforced concrete piles are driven by means of a hand or machine pile-driver, in the same manner as for wood piles; but the concrete pile head must be protected from any damage which might be caused by direct blows from the ram or monkey of the pile-engine. After a concrete pile is pitched in position ready for driving, the top of the pile is covered with a thick cast-iron or steel helmet or cap, a small bag of sand or sawdust being inserted between the cap and the top of the pile, so as to form a buffer which absorbs the shocks of the blows from the pile-driver, whilst at the same time transmitting the force of the blows to the pile. A short wooden "dolly" is usually fixed above the steel helmet, so that the whole provides a cushion which prevents the disintegration of the concrete head of the pile during the operation of driving.

Pile-driving with Water-jet. To drive reinforced concrete piles through hard, compact ground—such as heavy clay and gravel—is sometimes very difficult, and there is a risk of shattering the head of the pile unless great care is taken. Under such circumstances the driving of concrete piles is facilitated if they are fitted with a water-jet pipe and nozzle. A wrought-iron pipe about 1 1/2 in. diameter is embedded in the centre of the pile, and terminates in a small nozzle at the shoe-point. The pipe is then connected to a steam force-pump, and, when the pile is being driven, a high-pressure water-jet is forced through the nozzle at the point of the pile-shoe, thus assisting the penetrative power of the pile. If necessary, cement grouting can afterwards be forced through the pipe into the surrounding ground, so as to further consolidate it and add to the ultimate load-bearing strength of the foundation.

Concrete Screw Piles. Reinforced concrete screw piles have been used in the United States for providing a large bearing surface in marshy or boggy ground. The screw foot of the concrete pile is of cast iron or mild steel, similar in general design to those used for iron screw piles. Great care is required when screwing the piles into the ground.

Shoes for Concrete Driving Piles. These usually consist of a solid cast-iron or mild-steel point formed with square

seating for the concrete, and drilled for four 2 in. by 1 in. wrought-iron or steel straps from 18 in. to 24 in. long each. The straps are secured to the steel point, and the upper ends bent for bolting in the body of the concrete. The lower ends of the steel reinforcing rods are bent to shape, butted solid to the seating of the pile-shoe, and securely fixed in position. The average weight of a cast-iron mild-steel shoe for a concrete pile 12 in. by 12 in. in section is about 54 lb., and about 60 lb. for a 14 in. by 14 in. concrete pile.

Pile-Driving with Explosives. Piles may be driven by means of an apparatus which automatically inserts an explosive cartridge of gunpowder, etc., between the head of the pile and the ram. At every blow a cartridge is exploded, and this raises the ram or weight in readiness for the next blow, so that, when started, the machine becomes self-acting.

Weight of Pile-Driving Monkey.—For hand pile-drivers, the monkey usually weighs from 5 cwt. to 15 cwt.; for steam pile-drivers, a monkey or ram weighing from 10 cwt. to 30 cwt. is used. Reinforced concrete piles should preferably be driven with heavy monkeys or rams and short falls. Light monkeys with high falls tend to shatter concrete piles. For large works, machine pile-driving, with heavy rams and short rapid falls, gives the best and most economical results.

Safe Load on Piles.—The safe load (in cwt.) supported by a pile may be ascertained from the following formula:—

$$\text{Cwt. of safe load on pile} = \frac{W \times H}{SD}$$

where W = weight of monkey or ram, in cwt.,
 H = height the ram has fallen, in inches,
 D = distance the pile is driven by the last blow, in inches.

REINFORCEMENT FOR CONCRETE PILES.

Arrangement of Reinforcement.—Each concrete pile is provided with a cast iron or steel shoe, and is usually arranged with a number of steel rods (four or more) running throughout the whole length of the pile. These longitudinal reinforcing rods are held in position and securely braced together by means of a series of small-size steel rod or bar hoops spaced at short distances apart. In some cases the longitudinal steel reinforcing rods are held in position by means of stout wire or rod hooping, which is wound spirally throughout the entire length of the main reinforcement at intervals of a few inches. Whilst the general principle underlying the arrangement of the steel reinforcement in concrete piles is the same, there are numerous modifications as regards the details of fixing, sizes and sections of steel used, etc., which have been introduced by various firms who have made a speciality of reinforced-concrete pile design and construction.

CONCRETE FOR REINFORCED PILES, ETC.

Comprising Portland cement mixed with sand (or fine aggregate) and coarse aggregate, broken and double-screened, to pass 3 in., but not 3 1/2 in., mesh, including mixing, wheeling, depositing in position, and well ramming in the mould around the reinforcement, attendance in seasoning, and removal to site, and stacking in readiness for planting in position, etc., complete (exclusive of reinforcement, casings, or moulds, etc.)

Gravel or ballast aggregate (30s. to 6s. 6d., 6d.)	Per ft. cube.
Concrete 1 to 5 (1: 1 1/2: 20)	s. d.
" 1 to 4 (1: 1: 20)	0 23
" 1 to 4 (1: 1: 20)	1 29
" 1 to 3 (1: 1: 20)	1 3
" 1 to 3 (1: 1: 20)	1 4

Broken stone aggregate 10s., 6s. 6d., 10s. 6d. —

Concrete 1 to 5 (1:1:2)	Per ft. cube.
1 to 5 (1:1:2)	1 14
1 to 1 (1:1:2)	1 4
1 to 1 (1:1:2)	1 4
1 to 1 (1:1:2)	1 5

Broken granite aggregate 10s., 6s. 6d., 10s. 6d. —

Concrete 1 to 5 (1:1:2)	Per ft. cube.
1 to 5 (1:1:2)	1 6
1 to 1 (1:1:2)	1 6
1 to 1 (1:1:2)	1 7
1 to 1 (1:1:2)	1 7

ANALYSIS OF PRICES FOR CONCRETE IN REINFORCED PILES.

IX.—Concrete 1 to 4 (1:1:2) with granite aggregate screened to pass 1in. but not 7/8 in. gauge.	Per ft. cube.
2 1/2 ft. cube cement at 90lb. per ft. cube = 2 1/2 ft. s. d.	0 14
at 30s. per centum of 2,000lb.	0 14
3 1/2 ft. cube sand at 10s. 6d. per yard cubed.	0 14
7 1/2 ft. cube broken granite at 10s. 6d. per yard cubed	0 5

1 1/4 ft. cube of dry materials. Cost

Value of labour in measuring, mixing, wheeling, and well working and running concrete in moulds around reinforcement in small quantities, including water, extra labour, etc., removing to site and sticking where required.	0 5
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Add for establishment charges, use of plant, and profit, say 15 per cent.

Per ft. cube.	1 7
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Moulds FOR CONCRETE PILES.

Use of moulds, casings, etc., for casting concrete piles, square or rectangular in section, and of any length required. In quantities of not less than 12 ft. of same length in section.	Per ft. super. s. d.
12 ft. of same length in section.	0 4

Ditto circular or polygonal in section, and ditto ditto

0 5	Per ft. super. s. d.
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Note.—Add to preceding items if quantities of not less than six piles, and not exceeding 12 ft. of same length in section

25 p.c.	Per ft. super. s. d.
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REINFORCEMENT OF CONCRETE PILES.

Mild steel rod or bar reinforcement, bent or cranked to shape, including all necessary cuts, straps, hoops, ties, etc., and wiring same in position with annealed wire, where required, and suspending in moulds ready for concreting.	Per lb. s. d.
15 6	Per lb. s. d.

Ditto, including bending, and do. do.

16 0	Per lb. s. d.
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Pile shoes

15 6	Per lb. s. d.
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Mild steel or cast iron in pile-shoes, drilled for and including all necessary steel or wrought-iron straps fixed to same, including and fixing to ends of steel reinforcing rods, and placing in position in concreting moulds complete

15 6	Per lb. s. d.
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DRIVING REINFORCED CONCRETE PILES.

Pitching reinforced concrete piles, not less than 14 square inches in section, and cube, driving in ordinary ground.	Per ft. s. d.
1 3	Per ft. s. d.

Pitching ditto in tide work

2 0	Per ft. s. d.
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Pitching ditto in tide work

2 0	Per ft. s. d.
-----	---------------

Add extra for driving piles from barges or floating stages

0 6	Per ft. s. d.
-----	---------------

Note.—Add to preceding items if in small quantities

25 p.c.	Per ft. s. d.
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Allowance for bracing and erecting pile

Per lb. s. d.	Per lb. s. d.
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erecting, lifting, and lowering piles, and of piles, including removal at completion

£5	Per lb. s. d.
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REINFORCED-CONCRETE PILES COMPLETE.

Exclusive of Planting in position and driving. Comprising Portland-cement concrete, steel reinforcement, and use of moulds, etc., complete.

Note.—For detailed prices and descriptions of concrete, steel reinforcement, moulds, etc., see preceding items. Prime cost of gravel at 6s. 6d., broken stone at 10s. 6d., and broken granite at 10s. 6d. per yard cube, steel reinforcing-rods at 8s. per cwt., all delivered on site of work.

Including 3 per cent. including 1 per cent. (14 lb.) of steel reinforcement.

Per foot cube.	Per foot cube.
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Gravel concrete

1 to 5 (1:1:2)	1 4
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Stone concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Gravel concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Stone concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Gravel concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Stone concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Gravel concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Stone concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Gravel concrete

1 to 5 (1:1:2)	1 4
----------------	-----

Stone concrete

1 to 5 (1:1:2)	1 4
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piles (1 to 4) with 4 per cent. of steel reinforcement as being 5s. 4d. per foot cube, an analysis of the cost of each item, including establishment charges, profit, etc., is as follows:—

Materials for concrete (1 to 5)	Per ft. cube.
Labour mixing and placing concrete, including removing piles, etc., to site ready for pitching and driving	0 6
Labour of materials for moulds	0 8
Labour making moulds, including fixing and removal	0 3
Materials for steel reinforcement	1 7
Labour preparing and fixing ditto	1 1

The estimated cost of labour in making concrete piles as described above amounts to 1s. 11d. per foot cube, whilst the materials for concrete, moulds, and reinforcement cost 3s. 5d. per foot cube, of which 1s. 7 1/2d. is for steel in reinforcement, etc.

A detailed examination of the prices for reinforced-concrete piles also shows that the difference in the ultimate cost per foot-cube for the stronger descriptions of concrete, as compared with the weaker mixtures, is generally very slight. Thus, granite concrete 1 to 4 costs only about 1/4d. per foot cube more than 1 to 5 granite concrete, as the expense of making concrete, provision of moulds, and steelwork remains the same in both cases.

REINFORCED CONCRETE FOR SPECIAL PURPOSES.

The varied uses to which reinforced concrete is being adapted is rapidly extending. Not only is it employed for ordinary building and engineering work, but drain-pipes, water-pipes, and conduits; telegraph, telephone, and lamp posts; railway sleepers, cash-bars for roof-glazing, barges, horse and cattle troughs, tanks, factory chimneys, fencing and gate-posts, etc., are now being manufactured of this material.

Telegraph-Posts, Etc.—These are generally cast horizontally in moulds, and, after seasoning, are removed and erected where required. In some cases, however, telegraph-poles have been cast vertically in position. A hole is dug in the ground for the base of the pole, the mould and steel reinforcement erected, and the concreting completed.

Some satisfactory tests have been made with reinforced-concrete telegraph-poles manufactured by the British Improved Construction Company. The poles were 4ft. long, of square hollow section, 17in. square at the base, and 8in. square at top, the concrete being 2in. thick throughout. The reinforcement consisted of 3-16in. steel wires held together by 11-16in. by 1-16in. steel ties spaced 2ft. apart.

In Germany the "Schlender-Röhren" patent process is largely used for the manufacture of reinforced-concrete poles, tubes, piles, etc. These telegraph-poles, etc., are hollow, and consist of a natural composition of cement, sand, and asbestos with a reinforcement of steel wire. They are made on a specially-designed moulding-machine, which is so arranged that it revolves at a high velocity for about ten minutes after each pole is made. It is stated that by this operation the density and strength of the concrete is greatly increased. Large numbers of these telegraph and telephone poles have been used in Dresden, Leipzig, and other German cities.

They may ordinarily be obtained in lengths up to 45ft. long and 16in. diameter, but larger sizes may be obtained if required.

Trolley-Wire Poles.—The Cleveland Electric Railway Co. have constructed and erected trolley-wire poles of reinforced concrete. The cost is stated to be slightly more than similar steel poles. The advantages are, that no periodical painting is

required, and it is considered that they will last longer.

Lamp-Posts.—In the United States, lamp-posts, 25ft. long, 8in. dia. at base, and 5in. dia. at top, have been constructed and erected at a cost of about 32s. each, exclusive of the first cost of making the mould. The posts weigh about 10-wt. each, and are made with stone aggregate, broken to 1/2 in. gauge, the concrete being mixed in the proportion of 1 cement, 2 sand, 4 parts stone aggregate, and reinforced with four 3/8 in. dia. steel rods.

Railway Sleepers.—These were tried experimentally some years ago on one of the English railways, and the results obtained by the use of reinforced concrete sleepers were, on the whole, considered to be satisfactory. In Germany, sleepers made with a mixture of cement, sand, stone, and asbestos, and reinforced with steel rods, have been found to combine the elasticity of wood with the strength and durability of steel and concrete.

Reinforced Concrete Fencing Posts.—These have been used on several English railways. The original cast is usually slightly higher than for erected fir posts, but they are found to last longer. The average cost of concrete fencing posts is about 2s. 6d. each, or 7 1/2d. per foot run. Wire fencing, with reinforced concrete posts, strainers, struts, etc., and five lines of steel wire, may be constructed for about 1s. 4d. per yard run. Reinforced concrete gate-posts cost about 6s. each.

Tanks and Troughs.—Reinforced concrete tanks and troughs have been adopted in many chemical works with satisfactory results. The concrete resists the effects of acids, and is durable.

Flooring Joists.—In the United States, reinforced concrete flooring joists are manufactured for use in ordinary houses and buildings. Each joist has a wooden fillet secured to its upper edge, to which the floor-boards are nailed.

Drain- and Sewer Pipes.—Reinforced concrete is admirably adapted for the construction of sewers and conduits in situ, and has been extensively used for such purposes. Cast concrete tubes and pipes, with spigot and socket-joints, and reinforced with wire netting, helical wire expanded metal, etc., are also largely used. The concrete tubes or pipes made by one firm are reinforced with 3-16in. diameter steel wire wound spirally with 3in. spacing. The standard sizes vary from 12in. to 48in. in diameter, the concrete being from 1 1/4 in. to 3 1/4 in. thick. The pipes have a flat base, and are provided with spigot and socket-joints. Similar pipes, of egg-shape section, and varying from 12in. by 18in. to 40in. by 60in. section may also be obtained.

On the Continent and in the United States, concrete drain-pipes varying from 4in. to 30in. dia. are in ordinary use. They may also be obtained with glazed surfaces, the glazing being performed by means of machinery. Pipes up to 12in. dia. are usually made with 1 part cement to 2 parts sand, and completed without any reinforcement. Concrete tubes and pipes larger than 12in. dia. are generally made with 1 part cement, 1 part sand, and 2 parts gravel not exceeding 1/2 in. gauge, and reinforced with steel wire or netting. The average prices for concrete pipes and tubes are as follows:—

Concrete tubes or pipe, 9in. dia.	Per ft. run
15 3d.	15 3d.
Ditto ditto 12in. dia.	1 0
Ditto with steel wire reinforcement, 12in. dia.	2 10
Ditto ditto ditto 18in. dia.	3 9
Ditto ditto ditto 24in. dia.	4 0
Ditto ditto ditto 30in. dia.	6 0

Reinforced Concrete Barges.—Flat-bottomed reinforced concrete barges have been constructed for towing purposes in carrying coals, earth, etc. The concrete

was composed of 1 part cement, 11 parts sand, and 13 parts a cretaceous loam to iron, gault, and marl, and it was filled with wire and an expanded metal sheeting.

(To be continued.)

PATRIOTISM IN ARCHITECTURE.

By C. F. A. VOSSY.

If we make no effort to discover the foundations of our taste, we shall be easily borne away on the flood-tide of fashion. And education, appealing more to the heart than the head, will override reason and leave a vicious emotion to carry us on to the last uncessant pit of Post-Impressionism. It is only a matter of degree how narrow or debased our taste may become if we lose the balance of the senses; but the proportionate use of reason and emotion, whether it be on the side of emotionalism or intellectuality, is a quality of materialism. The human pomposity is for ever slowly swinging from one extreme to another, and we are for ever struggling to arrive at a happy mean. The present age shows a strong tendency towards lowering the development of our imitative faculty, leading to conformism and collectivism, and away from the individual, creative, and idealistic manner. In this collectivist attitude we see a vast amount of deadly conventionalism, which is a form of tyranny oppressing the young and old alike. It is too easily assumed that the majority are like sheep, to be penned in and controlled, and that it is not safe to lead them free in any direction. In matters of architecture, it is longer to be our guide, but some Cabinet Minister, with his staff of self-satisfied advisers. In short, a Minister of Fine Arts is to be set up to impose the Order of the Parthenon. A desperate endeavour is now being made to dominate men's conduct and to create what its advocates call a "NATIONAL STYLE."

To impose upon a definite Order of architecture on the young, and likewise upon the unfortunate contractors for public buildings. Our educational system is based on the assumption that some foreign architecture is a fit study for an English student. And he is given every encouragement to travel in foreign lands, and by such means to gain fluency in the language of architectural forms without the laborious study of the national character and conditions that have given them birth. These are the reasons that certain write-books to prove from their certain characteristic forms are derived, absorbing attention in superficial likeness, and missing the deeper points of difference, which, when examined in conjunction with climate and character, will be found to constitute the only vital and enduring qualities worthy of our study. It cannot be denied that it is far more important to know from what general principles good work is produced than to have a knowledge only fitted to reproduce given examples. How certain forms and methods have been introduced by the importation of foreign workmen is important enough, but what should concern us much more is how far our importations are fitting and desirable in scope and extent. Now we must observe that in all the finest examples of architecture throughout the world we find that the qualities we admire are due to the faithful use of local materials and conditions, the sincere expression of national character and aspirations; both of which qualities are strongly influenced by

CLIMATE, AND ALSO GEOLOGICAL AND GEOGRAPHICAL LOCAL CHARACTER.

The climate of a country affects its light, and the light affects its enjoyment of textures and colours on its walls and its light and shade. Who has not seen the insubstantiality of highly polished and glossy, and brightly glazed surfaces in England, and their absolute fitness under Eastern skies? Do we not readily associate bright surfaces and colours with strong sunshine, and rich sombre colouring with our cloudy skies? The effect of climate on the character of a people

has been proved by many scientific writers, and needs no repeating here. It is enough to observe the characteristics of local material as evidenced in our own country. Even different counties and districts will show a marked difference in character. Compare, for instance, the colour and texture of the materials in Westmorland with those in Kent. Let us mark well this characteristic of the finest architecture, viz., that it grew mainly out of national conditions and national character, and was never a foreign importation. And a national style can grow up in no other way. We must recognise our conditions, material and intellectual, if we would obey the Divine law of fitness. Are we working now on this principle? Are we not setting up a model to squeeze our requirements into it? Only recently in public an architect was holding up to the admiration of his audience photographs of American railway-stations designed as closely as possible on the model of ancient Roman baths. Should we, therefore, design Roman baths on the model of American railway-stations? What wonder if the people buy old barns and convert them into houses, forgetting that they are good barns they must be bad houses, and if good houses bad barns! As if good architecture were not the direct product of the purpose of the building. The general custom is to set the heart on a symmetrical facade and then squeeze our plan into it, making dark passages and lobbies, rather than using symmetry. But not often do we draught, rattling wood sash, instead of stone windows and iron casements, in order to produce a Renaissance character in our building? Do we not give the same size window to a closet that we give to our banquet hall, if it happens to come on our main front? How often do we see tiny little windows, the manner of a dual palace, porticoes and empty niches, cornices and broken pediments, provided for the villa rented at £70 or £80 per annum! Showing clearly that the outside comes first in our calculations and the plan afterwards, and that we are wedded to a form that is not born of the parent of practical requirements, but the foster child of a foreign bred fancy. The more we are designed from without inwards, not as it should be, from within outwards, I will not plead for either Gothic or Classic, but only that conditions and requirements shall dominate inside and out, and above all, that the expression of thought and feeling shall be national and sincere. We do not want Chinese national character expressed in a Greek temple. We do not want a poor man's villa to ape the stately home of the wealthy. The more we go to Rome the less we shall know of London. The freshness and charm of foreign lands has belittled our reverence for our own country. And we are apt to forget that our Maker has given us a climate and country different from all other nations. We cannot ignore this fact without loss of patriotism and national dignity.

FITNESS IS A DIVINE LAW.

and the more we investigate Nature the more we become impressed by its fitness; therefore we do wisely to work on the same lines, and we do wisely to prefer fitness to fashion. We be fit to use foreign styles to express English thought and feeling? The English architect down to the end of the Tudor period was content to learn and understand all the conditions of his own country, to understand the character of his own countrymen, and to express their emotions and aspirations. He was content to learn the possibilities and limitations of his material, and in order that we may benefit by his experiences in this direction, we should study all the pure English examples we come across, never forgetting that it is only unalterable technical qualities which we most need to learn, and not those accidents of passing fashion, or the changing manners and customs of different times. It is so important that we should notice, for instance, the way the stone in different districts was used, rather than the existence of battlements or moats, which tell not of the history of buildings so much as of the manner of life of the people. In our

admiration for ancient examples we are apt to imitate the forms of obsolete features and miss the practical and essential truths concerning the fitting use of material. We are fascinated by the marbles and mosaics of foreign countries, and fail to perceive how they expressed the quality of mind of the nation; the quality of light in their native land, no less than the geographical and geological conditions out of which they have grown. The practical and essential character of our material, and the national conditions and national needs and conditions is our indication of nearly all our patriotic conduct and sentiment. How few of the rising generation know to what extent the old Gothic builders in England revelled in colour and rejoiced in rich displays of harmony and human emotion! Those were the men who had never travelled abroad—never journeyed to foreign lands with any ulterior intention, or made love to foreign examples of their craft, but created noble buildings out of the bounty of their own land and the brotherhood of their own national character, and their own history, hopes, and aspirations, exactly as the Greeks and Romans, Italians, Spaniards, Chinese, and all the nations that ever produced a national architecture. Alas! the later Englishman has been unfaithful; he has turned his back on his own climate, and hardly speaks of it, except to abuse it! And he has opened his arms to all the foreign material he can lay his hands on. And he raves about the most un-English architecture he has got, regarding it as so significant, that all practical considerations must be waived for the purpose of providing an æsthetic approach to it. Men are quicker to discern likeness than difference, and any trivial likeness between one object and another in our memory is carefully treasured, especially if that memory gives us pleasure. We are content with trivial pleasurable sensations, without troubling to look for more sterling qualities in the objects of our admiration. Our St. Paul's is well proportioned and gives us a pleasing sense of light and shade, and is big, justifies its existence in many people's eyes. But that it is a clever man's copy of a foreigner's expression of his own national character—albeit a foreigner's wise and clever use of his own conditions and requirements, never seen to be considered as in any way a proof that

ST. PAUL'S IS AN EXOTIC

and not a national growth. It is not the product of our climate or the outcome of our national life. It is a theoretical falsehood and the most prolific parent of profligacy. The few wealthy who could afford to travel were intoxicated by what they saw, and they quickly lost their hearts to foreign beauties. And the universal law that we strive to reproduce what we love and admire led them to learn their English houses and erect Italian, Renaissance, French, and other foreign examples in imitation of what they had seen and in boastful proclamation of their foreign experiences. We are only now gradually awakening to the consciousness that the ravishing beauties of foreign architecture are always due to their being true and noble expressions of national character, governed by reverent regard for local conditions and materials. As a general principle we may reasonably assume that Nature's material qualities are more beautiful than anything that man can produce, though man may aid and enrich the beauty of Nature by the addition of his own beautiful thought and feeling. The recognition of this will vastly strengthen our patriotic feeling, and while encouraging a true appreciation of our own country, it will likewise help us to deal more steadily and more rationally with the importations of children of foreign parentage. And there is an effort being made to coerce the shopkeepers into the same mould. No matter what their trade may be, they must manage their business as best they may behind the Renaissance shirt-front. As if true architect-

ture were the expression of a cultured traveller, rather than a stay-at-home craftsman's endeavour to use local material fitly, to minister to individual needs and requirements.

THE TOWN PLANNER IS A COLLECTIVIST;

his idea is to drill humanity into line and regulate his outward movements regardless of his inward needs. He, too, regards the general aspect and ignores individual necessities. He must have building lines and symmetry, regardless of individual tastes and requirements. He would have our tastes and requirements regulated by Act of Parliament—the deadliest machine ever invented when used to coerce taste. Acts of Parliament were used to protect the weak against the strong to guard an Englishman's true expression of his local country, not to force him to adopt the language and manners of a foreigner. The vista may be a fine model to emulate, and a suitable place for strutting human peacocks and peahens, but for a strenuous practical Northern people it is not a fit and true expression of their needs to be introduced into every speculative suburb. The revival of any style or period of architecture, whether English or foreign, is an evil which tends to retard the due consideration of fitness in all its aspects. If we start a plan for a house with any preconceived example of a Classic temple or a Georgian mansion, a Roman bath, or even a Gothic monastery, we shall be less influenced by the peculiar characteristics of the site, the building owner, or the purpose of the building. And it is from the consideration of these conditions alone that all the finest architecture throughout the world has ever sprung. Moreover, consider how immensely stimulating it is to all human powers to have to evolve your building from such sources. The delight, too, of searching for moral qualities worth being stimulated by our building is untold, necessitating also an interest in contemporary life and feeling, so keeping our work alive and growing, and avoiding the stagnation of stereotyped conventions of ancient times. But the present method is to accept first a Renaissance conception and then ingeniously squeeze your accommodation into and behind the shell, and classify your requirements to suit your thirst for symmetry. It is like a Chinese puzzle, a tour de force, a clever exercise in cunning, leading to all manner of subtleties, and as such demoralising to all concerned. It is generally admitted that our English domestic architecture of recent years has advanced more than the architecture of any other public buildings and monuments. And I fearlessly assert it is because much of our domestic work has been produced by the method herein advocated, whereas our public buildings are invariably produced on the method condemned. And why? Mainly because the authorities who have to vote the money to pay for them are trying to please the voters, and they know that if they put up a half-marked building—that is, something colourably like St. Paul's—no one will venture to criticise their choice or their taste. The word has gone round that St. Paul's is all right, and it has been repeated so often that Mr. Brown and Mr. Robinson find it a very convenient sample of good taste by which to gauge their public buildings; the architect, according to the Alderman, being the outside jacket, and the added inside embellishments the gilt on the gingerbread, in fact, not one of them ever dreaming of the question—Is St. Paul's English? Is it a patriotic expression of our national character? If the importance of a careful study of national character and conditions were fully realised, a student would have little time for travelling abroad and by the time he reached the age of forty-five he had made good use of his country, foreign travel could do him no harm. But forty-five years is not enough time in which to learn everything about the resources and history of our own country. The more intelligent a man is the more he will feel how much more there is to learn than he can ever accomplish. If our modern public buildings are the outcome of foreign travel, who can defend it? Surely they are the dearest, uninspiring piles of

wasted labour and material that any country can show. Successful as dirt-traps and dust-catchers, emphasising the grimy nature of our town atmosphere. Here, then, we surely and in the rustications of our wall surfaces clear proof that the essence of our architectural detail has outweighed all considerations of fitness to our dirty town atmosphere. Innumerable are the examples of similar conformity to foreign styles, preventing due consideration of practical fitness; durability and cleanliness are sacrificed to imitative convention. The true mathematical proportion and strength of the orders is regarded as far more important than the adequate lighting or convenient placing of our chambers.

WE OUGHT NO MORE TO TEACH THE FIVE ORDERS TO STUDENTS THAN TO TRAIN THEM IN CHINESE.

Many will say that without the five Orders no sense of proportion can be taught. I do not think that with any Orders you can teach proportion. Proportion is a matter of feeling dependent on general culture and temperament. You may notice that every Order has its own proportion, and as much as the proportions of his body and limbs, when he is sincere in the expression of his sense of proportion it is a reflection of his own bodily frame. We can very well teach the character of materials and their proper use and limitations, but the less we try to teach art the better. Teach ethics instead, and make men think, and art will take care of itself. It would surprise many of us if we were to consider the amazing effect on modern architecture the one study of cleanliness would produce. If we are to avoid dirt-traps inside and out, we must concentrate our ornament and produce breadth and simplicity, both of which qualities demand good material and good workmanship. So by omitting conventional Renaissance detail we should be driven to create more interest and feeling to the enrichments we have, and in the plain broad surfaces we should feel the necessity of well chosen, genuine material and a high quality of workmanship. We can never arrive at these qualities if we are working to a definite style of the past. Use the past to supplement your experience of the use of materials, their possibilities and limitations, but do not be a slave to it. Do not depress young students by telling them they cannot possibly excel the noble men of old. Our increased experience ought to make us more able to excel anything that has gone before. The cultivation of patriotic feeling should make us devote more attention to English material, English conditions, and English men and for ever. The common stigma of being called the most imitative nation on the face of the globe. Art, being the manifestation of human thought and feeling, must always be individual and national. Furthermore, the emancipation from the tyranny of styles would open the door to brother-craftsmen. We should feel the necessity for the work of the painter and the sculptor in buildings if we thought of acres of machine-made Renaissance ornament. And brotherhood between the arts is what we need to stimulate, and it must necessarily follow the growth of patriotism in architecture. The strongest argument in favour of creating buildings from requirements and conditions, rather than in obedience to any preconceived style or model, is this: that it opens the way for the appeal to our higher nature, and stirs up the emotions and moral sentiments. It forces us to consider moral principles and work on definitions of truthfulness, fitness, and fidelity. We at once see the necessity for investigating and making full use of local materials, or the economic conditions that justify imposed costs. We are stirred to investigate all new inventions and fresh methods. This state of mind is one of perpetual alertness—on the look-out to seize every new advantage of modern times—and this healthy living condition is the most fitting wherein to recognise the true enduring qualities of life—viz., the moral sentiments. In our admiration for ancient building we forget that it is their manifestation of the spirit wherein they are great. The material we see is perishable and illusory. But in the spiritual significance

and expression of moral sentiments they are indestructible. In our familiarity with materials we forget that it is always the spiritual essence that is the life and soul of our work. Not the form of our expression so much as the deep thought and feeling it betrays. Can we not emulate Shakespeare in our architecture? Can his patriotic feeling express and encourage what is best in our national character?

THE SOCIETY OF ARCHITECTS AND STATUTORY REGISTRATION OF ARCHITECTS.

STATEMENT BY THE PRESIDENT, MR. GEORGE E. BOND, J.P.

It is apparent, from the communications I am constantly receiving from members of the profession, that there exists a considerable amount of misunderstanding, both in regard to the present position of the Society, and in the probable future action of its Council in reference to the above and other matters. Under these circumstances I think it desirable to make the following statement:—

THE RESULT OF NEGOTIATIONS.

As a result of negotiations between representatives of the Councils of the Royal Institute and of the Society, extending over fifteen months, certain proposals for the fusion of the Society with the Royal Institute and the promotion of a Registration Bill were agreed to; but on the scheme being submitted to a general meeting of the members of the Royal Institute on January 5 last, the proposals were referred back to the Council of that body for further consideration.

The members of the Society have, consequently, not yet been called upon to express their opinion on the above proposals by voting; but they have severely and adversely criticised them by correspondence, more particularly with regard to the question and terms of the fusion of the two bodies. The opponents of the scheme on both sides claim that too much was to be conceded for the little to be obtained in return.

THE POSITION OF THE ROYAL INSTITUTE.

The position of the Royal Institute is that it is pledged to Registration, and its Council have appointed a committee to consider the matter, in view of the situation created by the reference back to them of the proposals above mentioned.

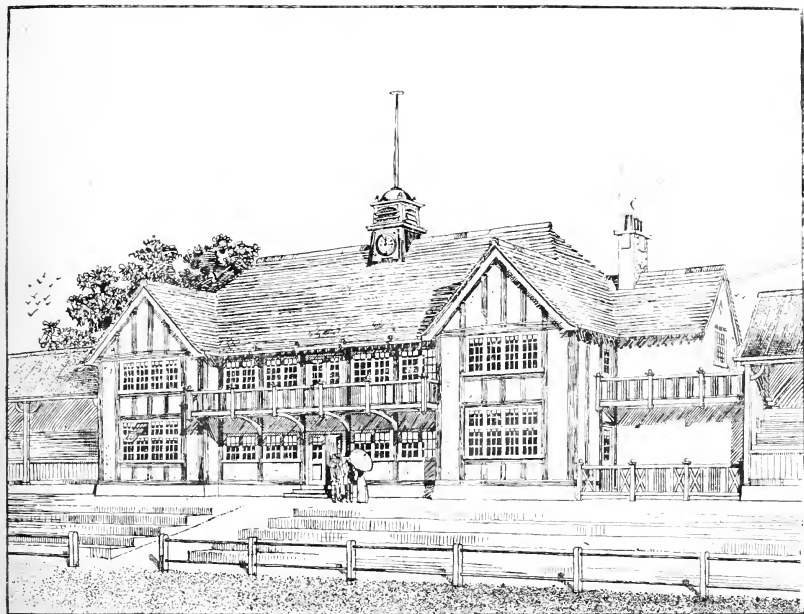
THE POSITION OF THE SOCIETY.

The position of the Society is exactly what it was before—that is to say, it is pledged, as always, to Registration, but not to any course of action therein with the Royal Institute, and the Council of the Society will not initiate further steps in regard to the fusion of the Society with the Royal Institute, though they will be prepared to favourably consider and discuss any reasonable proposition in regard to the subject which may be submitted to them by the Council of the Royal Institute.

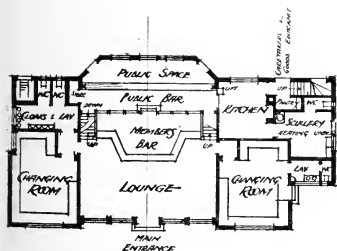
THE REGISTRATION QUESTION.

In regard to Registration, a new situation has arisen. The Society of Architects has been the pioneer in this movement for considerably over a quarter of a century, and when the Council of the Royal Institute adopted a Registration policy, this enabled negotiations to be opened with them, with a view to the promotion of a joint Bill.

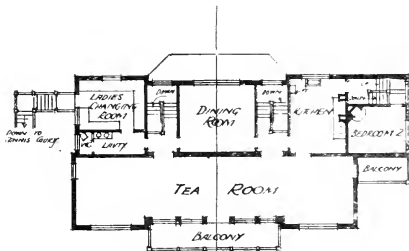
In the early stages of the discussion it became apparent that with regard to one of the main points of the proposed Bill, my colleagues and I, as representing an independent architectural body, could not possibly agree with the view put forward by the representatives of the Royal Institute, and as they were equally determined not to accept ours, the question of amalgamation was suggested to us as a way out of the difficulty; for both parties recognised, as all thoughtful persons must, that in the present congested state of public business in Parliament, a contentious Bill would not have the best chance of reaching a second reading, and that neither party could hope, under these conditions, to pass a Bill through Parliament unless there was unity of action.



NEW PAVILION, DUDLEY CRICKET CLUB: DESIGN PLACED FIRST.—Mr. A. T. BUTLER, F.R.I.B.A., Architect.



• GROUND PLAN •



• FIRST FLOOR PLAN •

SCALE OF FEET

10 0 10 20 30 40 50 60 70

DUDLEY CRICKET PAVILION.

SELECTED DESIGN.

The Worcestershire County Cricket Club are arranging for a number of their county matches to be held at Dudley, and therefore a new pavilion was felt essential. A limited competition was held, and the design illustrated was placed first, and is now in course of erection. The accommodation on the ground floor consists of lounge, 30ft. by 25ft., dining rooms, members' and public bars, and caretaker's accommodation. On the first floor is a tea-room 60ft. long with a balcony in addition. There is also a ladies' changing room with a foot-bridge leading to the tennis lawns, and further caretaker's

rooms. Brick, half-timber, and roughcast are used for the walls, and hand-made tiles for the roofing. Internally most of the rooms will be finished with V-jointed matchboarding in 5in. widths, stained green. Messrs. E. Hadley and Sons, of Old Hill, are the builders. Mr. A. T. Butler, F.R.I.B.A., of Dudley, is the architect.

THE POTTER'S ART.

To broaden the interest in the museums of the county borough of Stoke, and particularly the ceramic treasures to be found at Burslem, Mr. A. J. Caddie, the chief curator, has had a number of lantern slides of

the best exhibits prepared, and it is his intention to give a descriptive lecture on the subject in different parts of the area. His first lecture was delivered in the Prince's Hall, Burslem, on Thursday week.

Mr. Caddie opened with an allusion to the earliest history of the potter's art in North Staffordshire. Many, he pointed out, were under the impression that the local industry was "as old as New Cop," but really, potting, as we know it, in its systematic development was quite of modern origin. Apart from Roman pottery, the local industry did not date beyond the early part of the 17th century. Dr. Potts, the historian of the county, visited the district in 1690, and

CURRENTE CALAMO.

It is best to say little with regard to the fair and lucid statement of the President of the Society of Architects, which appears in another page, till the alternative - he indicates have been considered and discussed by the members of the Society. Briefly, we still think amalgamation the best policy, fully conceding that no one need be surprised that many members of the Society evidently do not think so, after recent events at the Institute. A joint Registration Bill, supported by the two independent societies, may be practicable, but we doubt it. As also the prospects of passing a Bill solely in response to further independent propaganda by the Society. That when the period for the reception of Licentiates by the Institute has expired, a renewed and considerable accession to the membership of the Society may follow is quite probable. The Society's single qualification for membership may very possibly have its attractions for some who chafe at what they consider the limitations of the Associates at the Institute. Of the ability of the Society to maintain its activities there can be no doubt whatever.

The disastrous coal strike has, we fear, administered a worse set-back to our own great group of industries than the railway strike did last year. At least sixty thousand workmen of one trade or another are out of work, mostly in the provinces, and by reason of the refusal of the railway companies to carry plant and material. There is nothing for it, we suppose, but to grin and bear the ineptitude of the Government, and the obstinacy and shortsightedness of those who forced the contest. This is no time to stir up party rancour or blame the non-performers of impossibilities. But what every business man, whatever his politics may be, must be asking himself to-day is why, when this strike was threatened before Christmas, was not Parliament at least promptly invited in February to do then what it has done now, and why were not the futile negotiations got through at the same time? We are, indeed, fearfully and wonderfully governed!

Science and Art were well represented at the Coal Smoke Abatement Exhibition last Saturday. Sir William Richmond's speech was a welcome complement of that made by Sir William Ramsay, and both taken together should prove irresistible pleas for use and beauty. We believe earnestly that, however, hastened, the day is near when the English people will no longer be contented to be smothered and poisoned because nothing must be done "in restraint of trade," or of greed and stupidity; and when Englishmen will revolt at doing the slavish work of the miner, under any conditions, or for any wages.

It is indeed, as Sir William suggested, an extraordinary anomaly that we should still dig up our light and warmth and energy, and send it up in lumps by rail where it is wanted, at three times its first cost, only to be wasted when used in the prodigal and pernicious fashion that has made England a "Black Country." In a little country like this, long ago, by pipe or wire, our fuel, power, light, made in the pit itself or at its mouth, ought to have been distributed cheaply and universally throughout the land.

With electricity at a hundredth of a penny per unit, the coal-stuff will vanish to reappear, possibly, like the warming pan, in future "artistic adornments" of the walls of the lovers of the curious. Cheap power will stop the further herding of the factory worker into huge cities of slums, and once again we shall see the clear skies and the un-murched flowers, and save the scrap it takes to wash away the twenty-seven pounds of soot every Londoner gathers about himself yearly.

We give elsewhere to-day an illustration and description of the model of the King Edward Memorial which is to be placed in the Green Park. Admiral Henderson's reminder in the *Times* of Tuesday's wide heading. He points out that it is "proposed to place it something like 500 ft. back from Piccadilly." Considering that it is now advisable, and will some day be essential, to widen Piccadilly by taking in a small strip of the Green Park as proposed some years since when the improvements at Hyde Park Corner were carried out, the Admiral suggests it would be advisable to place it at a sufficient distance back to allow for this. Another generation will certainly widen Piccadilly, a considerable portion of the narrow width of which is taken up by cabstands extending along the Park side. Space at least might be provided for these. The original scheme was not carried out, mainly on account of objections advanced by some to the destruction of a few trees in the Park which it entailed. These could easily be replaced, and the inclusion of a small strip of the Park would not be missed, for it would subtract no part of an open space.

Evidently only very privileged people are to be allowed to visit the new London Museum at Kensington Palace yet awhile, so we can say nothing; but we confess we sympathise with the Mayoress of Kensington's protest in the *Times* of Tuesday against the jarring note introduced by the realistic presentation of the horrors of Newgate, with the figures of the prisoners in the condemned cell, and lying chained on a pallet of straw. The Museo Carnavalet may see fit to keep before the Parisian public the sensational trophies of the Bastille, but the precedent need not be followed in such a collection of historical and artistic treasures as this, at all events while it remains in its present quarters. We do not want a Chamber of Horrors intruding upon the precincts of the birthplace of Queen Victoria and Queen Mary, or the nursery of thousands of London's little ones, to whom Kensington Gardens are a store of happy associations. Some museum organisers are very eclectic. We often used to wonder what the Duke of Wellington's hearse did at Marlborough House, some sixty years ago, when that edifice housed the beginnings of the South Kensington Museum.

The Metropolitan Water Board is testimony to the disastrous effect of slackness in the building trades on its revenue. From 1899 to 1903 there was great activity in the building trade. The number of new houses erected in Greater London ranged from 27,381 to 25,161 per annum. In the last-named year, however, a continuous decline commenced, and by 1910 the number had fallen to 11,757. There was a corresponding fall in the new water services laid in Water London, for whilst these were 22,672 in 1899,

they had in 1910 fallen to 10,377. These figures are of double interest. They show, in the first place, a great diminution of an development, and, in the second place, they reveal that as the arbitrations for the regulation of the water undertakings were conducted upon the corrected accounts of the late companies for the year ended December, 1902, or March, 1903, the companies had the advantage of the tide of prosperity in the building trade which had been a continually flowing since 1893, and was at its full flood from 1899 to 1903, but immediately afterwards began quickly to ebb, and has now again reached the low water mark of 1902-3.

This is how the money goes! Is a hard site, was the hospital unwanted, and how many needless "anatomies" are going up in bad places when the Insurance Act gets into full swing? At a meeting of the Hyde, Preston, and Garstang Joint Hospital Board at Preston on Saturday, the clerk reported that the Local Government Board did not propose to grant any order empowering them to use the Elswick Smallpox Hospital for cases of consumption, as their inspector had reported that the site was not suitable. Alderman Heys (Blackpool) said the Local Government Board had, not answered the question as to whether they could let or sell the building. The building was doing nothing now, and had never done anything, and personally he did not think they would require it for smallpox cases. The place cost £22,000, and was lying idle. Mr. Lightwood (Latham) moved that a small deputation should be appointed to wait on the Local Government Board and thrash the matter out with them. All the evidence on the spot was to the effect that the site was suitable, and they had been definitely informed by Dr. Sergeant, the county medical officer, and Dr. Fisher that it was suitable. The clerk said the day on which the inspector visited the place had a good deal to do with his decision: it was raining and snowing. The Rev. G. B. Stones (Garstang) said the day the inspector saw the place it was nothing more than a swamp.

The world moves very slowly, and it may dishearten some of the believers in free libraries and free education to recall the fact that neither seem to have saved Assyria, though her people were pre-eminently learned. The library of Assurbanipal contained 20,000 books written on clay tablets, and these are now being translated, one result being the opinion of an eminent archaeologist that the average child of Nineteenth 650 years B.C. was better educated than the average child of today. Some of the medical treatises are suggestive. Thus we are told that if a man has colic we should "make him crouch down on his heels and pour cold water over his head." Again: "When a man is bilious, rub him with an onion, and let him drink nothing but water, and abstain from food altogether." But if a man is in "a weak state," who should it benefit him to "strike him on the head fourteen times with your thumb"? Was this faith-healing, or the origin of the phrase, "getting him under one's thumb"?

It has been decided to erect a new Sailors' Institute at Holyhead commemorative of the investiture of the Prince of Wales in Carnarvon Castle. The contract has been let to a local firm for £1,000. Building operations are to be commenced immediately.

COAL-SMOKE ABATEMENT EXHIBITION AND CONFERENCES.

An international smoke abatement exhibition was opened at the Agricultural Hall last Saturday by the Duke of Argyll, under the auspices of the Coal Smoke Abatement Society. At the luncheon, Sir William Ramsay, proposing "Success to the Exhibition," suggested that just as deposits of salt were worked, not by mining the salt, but by using it in water which was recovered as brine, so it would be best instead of mining coal, to have retorts in the bowels of the earth for the production of gas. A boring might be put down to the coal strata, the coal might be heated where it was, and air and water might be passed down so as to produce hydrogen and carbon monoxide. The resulting gases might be used in gas engines at the pit mouth for the production of electricity, which might be distributed by high-tension currents to any desired point, that would settle the strike problem and he suggested that the miners should consider very carefully what they were doing, lest it should be found that the country could do without them. The resources of science were not exhausted, and a plan such as he had suggested might enable electricity to be used for heating, at a price of perhaps one hundredth of a penny per unit.

Sir William Richmond referred to the splendid practicability of Sir William Ramsay's suggestions. When politicians talked, he said, the man of science must come in, because the man of science, who was on the progressive side of the human race, appreciated the question whether any party feeling. It used to be said that the manufacturers did all the mischief in the smoke trouble, but that had been contradicted, and domestic fires evidently contributed an enormous amount of smoke to the nuisance. They had to enlist public opinion on that great subject, and to remove if possible a certain aspect which, he was afraid, belonged to the strength of the English character, an apathy which said: "It did not very well for my fathers and it ought to do very well for me." The coal strike might very likely be productive of further scientific investigations, and it might be shown that they could do without coal. The great scientific intellects of this country would not be slow to put their heads above water and deal with that which looked as if it might possibly be one of the great tyrannies. They must admit, however, that they were attracted to science that beauty had a great function to perform in the world. It was one which the English people once possessed in very large measure, and he believed they would again possess it in very large measure. It was so, and if they were again to have a white city, they would find gardens on the house-tops, they would find greenery in the great cities, they would find greenery in the great cities for three hundred years, and they would have a healthy people, not effete because they were living beauty, but a people with energy and backbone.

THE LUN EXHIBITION.

The Lun Exhibition is not a very strong one, but there are several interesting items. One of them is a model drawn to scale of the Clock Tower, the Palace of Westminster and the Houses of Parliament. Between them is a great square black column, 500 ft. high and 4 ft. wide, representing the 76,000 tons of soot which annually fall on London. Above it, this deposit includes 6,000 tons of ammonia, and 8,000 tons of sulphate, a excellent manure if it could be collected and dug into the ground; but descending to the level of the town from heaven, it has a serious effect on human beings and vegetation.

A collection showing the effect of smoke on Canterbury Cathedral is lent by Mr. W. D. Curre, M.A., F.R.S., F.S.A., the Cathedral authorities.

THE TRADE EXHIBITS.

are divided into seven sections. Smokeless fires, domestic heating, including coal fire grates, gas fires and stoves, and electrical heating, are the first group. The second group is the appliances for heating houses and buildings, including furnaces, hot-water radiators, and apparatus for ventilation and the removal of dust; and apparatus

to prevent the emission of dust or grit from chimneys. Some miscellaneous articles will also be found which the visitors will group at pleasure.

Messrs. Ewart and Son, Ltd., have a good assortment of geyser and other instantaneous water heaters.

Messrs. Babcock and Wilcox, Ltd., show one of their patent chain grate stokers, of which there are over 5,200 in use, and which are specially designed for the efficient and smokeless combustion of semi-bituminous fuels. They also show their automatic water-softeners and their steel-stayed and self-supporting steel chimneys.

At stand 89 there is a German "smoke dissipator," which seems ingenious. This apparatus, invented by Professor Dr. Wisheimsen, is self-acting without the use of any mechanical or chemical agencies, and does not require attention of any kind. The dissipator forms the upper part of an ordinary factory chimney stack. It consists of a number of perforated bricks of special design, arranged in lines, like a grating. The total exit area of the perforations exceeds many times the exit area of the ordinary chimney. The dissipator on top of a chimney performs dilution of the smoke or waste gases, by mixing a large quantity of air with them, thus neutralising as far as possible their detrimental effects. The air entering the chimney through the perforations at the side, struck by the wind, we were told, causes the smoke or fumes to be whirled round in the very chimney, so that, when they escape through the perforations opposite, the smoke or fumes are already thoroughly broken up and diluted, and, owing to the still further dissipation of the perforations, they are still further dissipated, the distance increasing progressively with the distance from the stack.

CONFERENCES AND PAPERS.

Conferences of delegates of municipal authorities and other bodies have been held on the 26th, 27th, and 28th. Sir William Ramsay, F.R.S. (President, British Association); Sir William Richmond, R.A.; and Lord Justice Fletcher Moulton were the respective chairmen. The conferences were divided into three sections, to consider:—(a) Smoke pollution and its effects; (b) Smoke abatement; (c) Law. For the purposes of this paper I shall assume that by the term "competition," is meant—competition undertaken under the most ideal conditions, guided by rules laid down and approved, in so far as they have been approved, by the American Institute of Architects, that is: (1) Competition limited to a certain number of architects; (2) open to all architects; (3) mixed, certain architects being invited, but other architects being at liberty to take part. The Institute, by recommending that, except in cases in which competition is unavoidable, an architect be employed upon the sole basis of his fitness for the work, tacitly, at least, takes the stand that the effect of competition upon the practice of architecture and upon architecture itself, is for the most part, good. The New York Chapter, however, admits that for public and semi-public buildings competitions may be desirable; other chapters make the minimum amount a building should cost in order to warrant a competition. Now, as a matter of fact, notwithstanding the view of the Institute as a whole, and the individual views of the several chapters, possibly every man in this body has participated, to a greater or less extent, in competitions, and each one has been guilty very closely in the ratio to his prominence in the profession, in spite of the great economic loss to the profession, and of its being "a game of chance." To properly describe the effect of competition upon architecture would require an analytical comparison of the work of representative architects, won in competition, with other of their works executed after direct selection, and taking all the attendant conditions into account. Much has been said upon the ethics of the competition, but very little upon the actual influence of competition upon architecture, and I have to admit that it is a very broad subject, and that, perhaps, in the future, an adequate paper on this subject

to health and comfort, and the amenities of life which it would bring, could not get rid of the injury and pollution caused by sulphuric acid.

Mr. Noel Heaton, dealing with the influence of smoke on decorations, said that deposit of the pigments of a mural painting should not fairly be attributable to smoke, for it was quite possible to execute any internal painting or decoration with pigments that were perfectly stable and proof against attack; but there must be sufficient technical knowledge and experience on the part of the artist.

The Hon. Rolfe Russell, in a paper on "Smoke and Fog," said the worst offence certainly came from domestic fires, for the darkest fogs had been on Sundays and Christmas Day. Sir William Ramsay, presiding at the afternoon session, when the effects of smoke pollution on animal and plant life were discussed, said that they were agreed that the chief sinners in causing the absence of ultra-violet light were the producers of smoke, and they were met together to do all they could to do away with that pollution.

Mr. J. W. Bean (Assistant Curator, Royal Botanic Gardens, Kew) contributed "A Note on the Recent Observations of the Smoke Nuisance at Kew Gardens."

Miss Agar, landscape gardener to the Metropolitan Public Gardens Association, dealt with the effect of smoke on town gardens. In London, she said, it was very noticeable how premature was the shedding of soft-foliated leaves such as limes. Taking the case of five months, it was as if they were deprived of six weeks of its manufacturing period. No wonder that town trees were sickly and stunted in growth.

COMPETITION AND DESIGN.*

By J. MILTON DYER, F.A.I.A.

In attempting to deal with this subject, it has been extremely difficult to confine myself to the actual effect of competition upon design, rather than to revert to a discussion as to the propriety of competition in itself, and more or less of a discussion of the ethics governing competition. For the purposes of this paper I shall assume that by the term "competition," is meant—competition undertaken under the most ideal conditions, guided by rules laid down and approved, in so far as they have been approved, by the American Institute of Architects, that is: (1) Competition limited to a certain number of architects; (2) open to all architects; (3) mixed, certain architects being invited, but other architects being at liberty to take part. The Institute, by recommending that, except in cases in which competition is unavoidable, an architect be employed upon the sole basis of his fitness for the work, tacitly, at least, takes the stand that the effect of competition upon the practice of architecture and upon architecture itself, is for the most part, good. The New York Chapter, however, admits that for public and semi-public buildings competitions may be desirable; other chapters make the minimum amount a building should cost in order to warrant a competition. Now, as a matter of fact, notwithstanding the view of the Institute as a whole, and the individual views of the several chapters, possibly every man in this body has participated, to a greater or less extent, in competitions, and each one has been guilty very closely in the ratio to his prominence in the profession, in spite of the great economic loss to the profession, and of its being "a game of chance." To properly describe the effect of competition upon architecture would require an analytical comparison of the work of representative architects, won in competition, with other of their works executed after direct selection, and taking all the attendant conditions into account. Much has been said upon the ethics of the competition, but very little upon the actual influence of competition upon architecture, and I have to admit that it is a very broad subject, and that, perhaps, in the future, an adequate paper on this subject

* Paper read before the American Institute of Architects.

may be written. Upon receiving an invitation to enter a competition, and upon receipt of the programme and requirements, one realises that he is taking up a new and strange problem, and is dealing with an unknown owner or committee; the personnel of the jury may or may not be known to him. In either case, the economical idea of the plan may often be worked out independently—that is, the disposition of space and the arrangement of departments, the one with the other, circulation, etc., may be determined irrespective of any supposed idiosyncrasy on the part of the jury; but even in the case of the plan, this independence is only too often influenced by a vague mistrust as to the personal likes or dislikes of the jury, concerning some particular arrangement, thus preventing an individual and heartfelt expression of the solution. After the plan has developed to an advanced stage, one may surround it with four walls punctured with holes, or attempt to give those walls architectural expression and a character which denotes the intended character of the building. Here, again, one's thoughts turn to the approval of the owner and his expert advisers, rather than to a courageous, independent, impulsive study of the problem. You are afraid to be impulsive, to play with the motives, to do the thing you, yourself, feel; you may not win; you may not have the favoured "parti." While it is true that the most important element which is lacking in the competition, and which must, therefore, affect the final result, is the inability to get into touch with one's client, and thus develop a solution, nevertheless the viewpoint of the expert adviser and jury itself affecting design is greatly responsible for the prevailing desire to sell one's soul to the wind; and it is possible we should have a Code for the Conduct of Jurors, as well as for the Conduct of Competitions and Competitors. Must we, in competitions, be eternally condemned to the use of an order? Is there no value in wall-space? The late Mr. John Carrere has said that one argument advanced in favour of competition has been the desire to discover new talent, and added, "If you have talent his day will come, and it should not come until he is prepared to make use of it. A man who will not permit to express original ideas on paper is, nevertheless, not to be entrusted with the execution of the work until he has acquired the requisite experience, for when it comes to the serious work of actual building, he requires not only the experience of the practical side of things, but also the practical artistic experience—the experience that knows what a thing that looks well on paper represents a thing that is going to look well in execution; and that refers to every detail of the work, the very texture of the material. It requires unique experience, which cannot be acquired by any man, no matter what his genius may be, without practice." Now, I believe that the safe, dignified, substantial character which to obtain recognition in the profession is to gain your clientele through the excellence of your executed work, the importance and volume of which will grow as rapidly as it deserves; nevertheless, it has been my experience that the presence of a serious competition in the office does develop the men, from the head to the office boy, into draughtsmanship, knowledge of the principles of design, and the faculty of quickly expressing one's thought on paper. An esprit de corps is created in the office, for here is a real competition, something more than a school problem, and, naturally, all take a keener interest in the result. Great good is accomplished in the attitude of the principles, and the competitions instituted by the Beaux Arts Society and by several magazines, but the efforts of all in collaboration, working in an office upon a serious competition, develop not only draughtsmanship, but a real conception of architecture in its higher meaning, such as many months of routine work may not accomplish. A great number of competitions, even in some of our best-known offices, have been won by clever young designers, developed under these conditions of training. While this should not necessarily warrant these men being selected as architects, it nevertheless demonstrates that the system of conducting competitions does

stand for training in design. It is equally true that a number of these young men have, through the medium of competitions, developed into some of the prominent architects of the country, and have shown, by their subsequent work, that they were prepared to make use of their talents. The Tarsney Act, approved February 26, 1893, authorising the Secretary of the Treasury to employ plans and specifications for public buildings, paved the way for a better architecture in our Federal buildings, and, in turn, has, since its adoption, reacted upon the work of this department of the Secretary of the Treasury, until, as Mr. Glenn Brown, in his review of 1906, states: "Under the Tarsney Act it must be conceded that the work is immeasurably superior to any building done by the Government from 1890 to 1896, and it, together with the merit system, which now rules in the office, has been a material factor in uplifting the character of the work done by the corps in the Supervising Architect's office during the past six years." Since 1897, under the direction, and with the advice and assistance of the officers of the Institute, programmes have been issued by the Supervising Architect for scores of important Government buildings throughout the country, and the result has been public buildings of an excellence of design and execution heretofore unknown in the United States. These competitions, however, have affected design to an enormous extent. The type of architecture in our Government buildings, as well as other municipal and semi-public buildings, has for the most part become circumscribed. Before the drawings are sent in it is almost possible to foretell, within small limitations, the general character of design of the contestants. It is always the base story with a superimposed order, enclosing two or more stories, with perhaps an attic; the order will extend from the ground through all the stories. In any case, it is almost sure to be an order, and, as before stated, the value of plain wall space in design seems to have been overlooked. This use of the order as the main feature of a building, with several stories enclosed in its height, is seldom successful, and probably never when more than two stories are included. Why does competition insist upon a Government type requiring our architects to crowd these many stories within the order, thus making corridors of the rooms within, by reason of the usual depths, or rooms too large for an economical arrangement of space, when the logical expression of an economical plan demands that the window openings be made subservient to this plan? It is true that while the character of architecture should proclaim the dignity and purpose of the building, why should the arrangement and lighting of the interior be sacrificed to the everlasting order? Does the fact of the order in competitive design spring from the belief that this form of architecture is really the emblem of the Government, and that in the United States, or is it to be laid at the door of our system of conducting competitions? If the latter be true, I again affirm that the cause lies in that inborn desire to win, and the competitor, in order to do so, gives the jury that official type he believes the jury wants, to the absolute prostitution of purpose, and the results are plain. Is it really all competition judgement, or is it that he is correct. The jury does demand the recognised official type. If therefore appears to me that, in competitions, the jury and expert advisers exert fully as much influence upon design as the competitor himself. The official type of public buildings, whether for the Government or a municipality, is the offspring of the competition as at present conducted, and, in turn, influences, and very often determines, the type for many buildings forming part of a grouping plan, such as is being developed in many of our larger cities, thus condemning the whole group to a type which most surely will not be the last word in the architectural expressing of public buildings. Much that has been heard of late may also be said concerning competitions for buildings of a commercial character. With a possible exception, as in the case of those problems of great monuments which are purely artistic in their character, and which

may require the collaboration of the sculptor, or decorator, taking into consideration the present status of the competition, I believe the best method of securing an artistic, as well as a practical, result, is by the direct selection of the architect. For the fact that competitions have been conducted in Europe, and especially in France, for many years with undoubted success, exerting a marked and beneficial influence upon architecture, also the willingness on the part of most of our ablest architects to enter competition, with, as a result, hundreds of successful monuments attesting their skill, and the fact that perhaps more time of the Institute Conventions is devoted to the consideration of the problems pertaining to competitions than to any other subject, indicates that while the perfect code for the conduct of competitions, competitors, jurors, and clients has not yet developed, nevertheless we may be gradually, through a slow but progressive process of education, evolving a system which may eventually enable competition to exert a beneficial effect upon design in architecture.

DOMESTIC ARCHITECTURE.

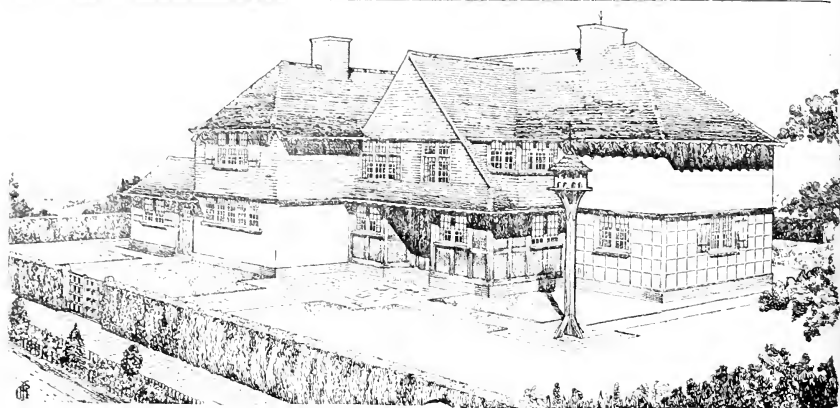
A NEGLECTED ART.

At the Building Trades Exhibition at Rushmore on Thursday week, Mr. Laurence Weaver gave a lecture on "Small Country Houses." His object was not to show us how they may acquire comfortable country homes for modest sums of money, but to make them realise that domestic architecture is a serious fine art. It was difficult, he said, to make people realise this. But until they did, and until they allowed to those who practised the art reasonable liberty to do what was necessary in order to express themselves in the manner of their art, the development of domestic architecture must be restricted. Of the best of the English work we had reason to be proud. He believed it was not only the best architecture of its kind of its time, but the best of any time. In comparing modern houses with the great historic houses of the country, we must remember the freedom of the old architects from the difficulties which faced the modern. In the old days there were none of the numerous contrivances for comfort and sanitation which now had to be provided and hidden away in the walls. Domestic architecture must be reasonable; people could not be persuaded to live in fantastic houses. Its success depended first of all its convenience, and, secondly, on its beauty. Mr. Webb lately has been the means of a series of lantern slides, how the restoration of domestic architecture in England, which he dated from the building of William Morris's "Red House" by Philip Webb, was a return to old traditions. He laid stress on the importance of following local traditions, and he expressed a hope that every individual or group of architects there would be formed a local school of architecture based on local traditions.

Mr. Edgar Wood, who presided over the meeting, said that although the best of English domestic architecture was unequalled in the world, the great mass of our town buildings were deplorable. The blame did not rest, he thought, with the architects; the great sinners were the public bodies. The problem seemed to be some form of public control over building; but it would be impossible to make much improvement until the public took more than its present apathetic interest in architecture.

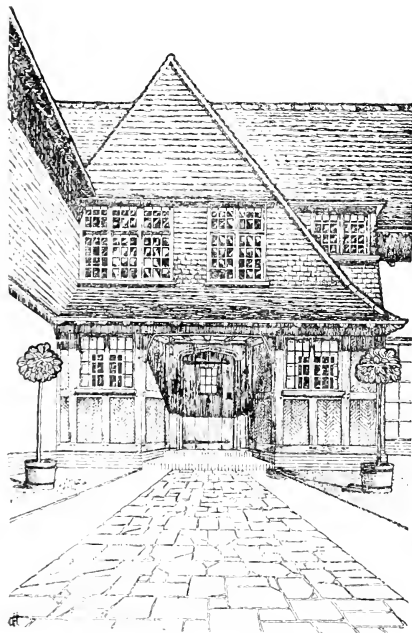
The Great Western Railway Company has intimated to the Board of Trade that it proposed to remove the existing pontoon pier and approach at Neyland, and to construct upon a portion of the site of the approach an open-sided timber slipway, about 500 ft. long, the high-water mark was the 50 ft. waterline, standing about 14 ft. above the surface of the shore.

There have just been erected, in Quinton-road, Coventry, new headquarters for the 4th South Midland (Howitzer) Brigade, Royal Field Artillery. The headquarters buildings include drill hall, gunners' mess, officers' mess, and store-rooms, men's recreation-rooms, canteen, and house for the brigade sergeant-major. The whole place is lit by electricity.

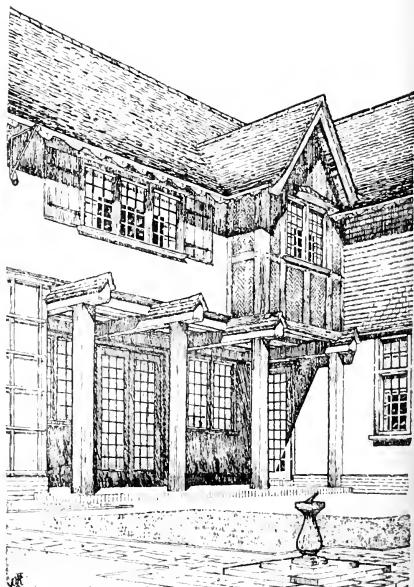


IDEAL HOUSE (COST £1,100), ERECTED AT IDEAL HOME EXHIBITION, OLYMPIA.

Mr. R. C. FRY, Clifford's Inn, Architect



THE MAIN ENTRANCE.



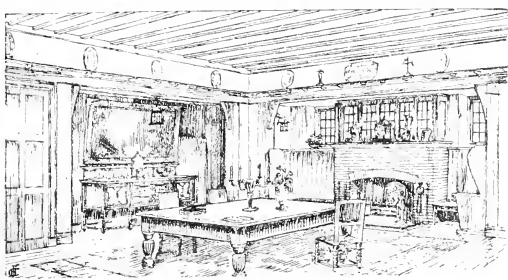
THE LOGGIA.

THE IDEAL HOME EXHIBITION. Preparations for the Ideal Home Exhibition, which is to be held at Olympia from April 12 to 20, are already well in hand. Of "The Millions" (the cathedral) not a vestige remains, and its place is rising what will be a display of everything which goes to make a home comfortable, convenient,

healthy, and beautiful. Some three hundred firms will be represented, and it is estimated that the total value of the exhibition will be about £100,000.

The enterprise will embrace a Dutch village of two and a half acres, complete with canals, twenty-five buildings, 50,000 flowering tulips and hyacinths, craftsmen at

work, a farm, an eleven-roomed house, perfect in every detail and built under Olympia's roof at a cost of £2,000; forty rooms, each furnished in the modern styles of England, France, Belgium, and Holland; a 25ft. waterfall and water garden, and a table dressing display organised by H.S.H. Prince Alexander of Teck. Every requisite

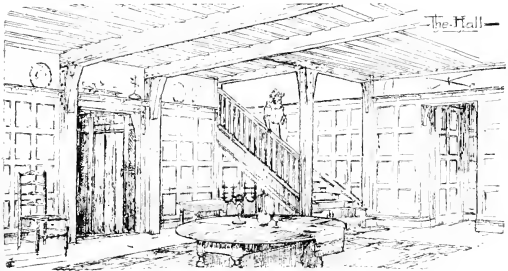


THE DINING ROOM.

for the house will be in view, and the Ideal Home Exhibition will serve to introduce a number of new inventions of considerable importance in domestic matters.

The House, of which we give four illustrations, is from the design of Mr. Reginald C. Fry, of 12, Clifford's Inn, and is being erected by Messrs. H. and G. Taylor, of

life, and, in the best sense of the much-abused word, an "unprescientist." He first introduced the element of picturesque into art. She sketched the old-world legend of St. Ursula and the eleven thousand virgins, which Carpaccio so finely painted, and then went on to speak of the famous group of painters who, at one and the same time, were



THE HALL.

Parklangley, Kent. The normal cost is £1,100, but as it is to be built at Olympia in ten days, and was only started at 9.30 a.m. last Wednesday, it will cost there £2,000.

VENICE AND HER PAINTERS.

At Liverpool on Monday, a lecture, illustrated by many lantern slides, was given by Miss Jessie Macgregor, the well-known artist, on "Venice and Her Painters."

Miss Macgregor endeavored to account for the admitted supremacy of the Venetians in colour by pointing out that, owing to her trade with the East, Byzantine traditions in art lingered longer in Venice than in the rest of the peninsula, and that the one great merit of the Byzantine school had been its richness of colour and effect. Drawing attention to the difference between Florentine and Venetian art, she said that the appeal of the latter was less to the religious emotions and the intellect than to the senses. This was because, after the death of Giovanni Bellini, "the heart of Venice," in the words of Ruskin, "was in her wars, not her worship."

In Venetian art, three distinct periods could be traced—(1) the Vivarini epoch (corresponding with the Grottesco period in Florence, although it flourished nearly a century later); (2) the Bellini epoch, terminating in 1526 with the death of Giovanni Bellini, who was the greatest religious painter of Venice, and the father of the Venetian school; and (3) the age of culmination, which produced Giorgione, Titian, and Paul Veronese. Carpaccio she described as an unconscious illustrator of contemporary

pupils in the school of Giovanni Bellini, chief among them being Giorgione and Titian.

The lecturer then enlarged upon the astonishing precocity of Giorgione, between whom and Titian a rivalry soon sprang up, and spoke of the difficulty of distinguishing his pictures from the earlier works of Titian. Passing on to a review of Titian's methods and of his principal works, Miss Macgregor said that, in her opinion, Titian was not a great religious painter, but a portraitist of the first rank. She then briefly sketched the career of Tintoretto, "the little dyer," describing the independence of his character, the impetuosity and originality of his fiery genius, his self will and industry, the speed and force of his brush, and the methods he adopted to attract attention and secure patronage, particularly dwelling upon his work at the school of St. Roch and the Ducal Palace. Paul Veronese and Tintoretto, she remarked in conclusion, were the last of the great painters of Italy.

GERMAN FORESTRY.

At the annual meeting of the Midland Reafforesting Association at Birmingham, an interesting lecture on "German Forestry and its Lessons for England" was delivered by Professor Ernest Story, Professor of Forestry in the University College of North Wales, Bangor, and expert adviser to the association.

The lecturer remarked that the Englishman was apt to regard forestry as a hobby, and to associate trees with beauty and romance. He never dreamt of tree-planting as an industry, or of timber as a commodity necessary for the well-being of the community. Germany, on

the other hand, had fully developed a respect, and far more than a sentiment, for the country had systematically pursued a definite afforestation policy. A fourth part of the total area of Germany was given over to the production of timber, no less than 35,000,000 acres bearing the cover of trees. The annual revenue from these forests was something like £25,000,000, double what it was thirty years ago, while many thousands of people gained their livelihood in the forests. Half of the forest area was in private hands, and most of that was managed with by the State. Over 10,000,000 acres belonged to the nation as a whole. The remainder was under corporate control, belonging to municipalities and institutions, such as the Midland Reafforesting Association, and the Government subsidized many of these. The State-owned forests, in particular, were admirably managed. They were supervised by an army of trained officers, who were an extremely fine set of men, and they were made the most profitable, bringing in larger returns in timber and in money than the private woods. The quality of the timber was also influenced for good by the more skilful treatment which the Government forests received.

The German Government was constantly buying waste land in order to extend its forest area. Prussia added some 140,000 acres annually, if one took the average for the last forty years. The forests were distributed fairly equally over the country. To the north there was pine; to the west, oak and beech; in the south, the spruce and the silver fir, which were the two trees principally cultivated for their timber. As to the position in England, if only we would conduct tree culture with the same earnestness with which we pursued agriculture, all would be well. Nothing would be achieved until the Government took the matter in hand. The private owner was handicapped on all sides, and, if he had the will, he seldom had the means to afforest. From its nature, the length of time required, the large scale on which operations had to be carried out, and, above all, the importance of continuity of policy, forestry was an undertaking more suitable for the State than for the private owner. The latter should be assisted, as the private owner was in Germany, by the provision of better facilities for education in forestry, by the giving of technical advice on the treatment of his woods, and by the free distribution of plants. Probably, however, nothing would benefit him more than to see well-managed State forests, springing up in one place and there, from which he could obtain practical suggestions. The chief usefulness of the Midland Reafforesting Association lay in two directions, in transforming blotches of ugliness into places of beauty, and in doing pioneer work for the great afforestation industry.

SHOP FITTINGS.

A MOST USEFUL TRADE CATALOGUE.

Messrs. Harris and Sheldon, Ltd.'s, 250 page general catalogue of shop-fittings has just reached us. We find in it some 4,000 illustrations, descriptive of every branch of the shop-fitting industry; this, it is claimed, being the largest list of purely shop fittings issued by any firm in the world. Not content with the ordinary number and alphabetical index, Messrs. Harris and Sheldon have inserted a "quick index for busy people," which was really rendered necessary by the multiplicity of their manufactures.

The firm actually manufactures everything, from a small metal socket or window arm to the larger and more complete counter, glass showcase, or shop front. Their manufactory is situated in the centre of the brass shop-fitting industry, and the present high state of efficiency obtained by their goods has only been arrived at after the collaboration of several generations of artisans to this specialised industry. A firm that will take the trouble to give full satisfaction with respect to an order for a gross of ticket-clips as they do, or, on the other hand, in the execution of an order running into many thousands of pounds, such as Messrs. Whiteaway, Laidlaw, and Co.'s new premises in

Our Illustrations.

THE AMALGAMATED PRESS NEW PREMISES, FARRINGTON STREET, E.C.

The freehold of the site on which this very large and commodious new building is now being erected cost £58,000, and the new offices of this important company will entail an outlay of £75,000. The total area of the land on which the building stands is 22,000 square feet, and the height of the structure from basement to roof is 90ft., its contents being about one and a half million cubic feet; the floor area is three acres, and there will be over five acres of plastering on the walls and ceilings. The plans given show the ground and first floors. The basement will be occupied by printing plant. There are 120 rooms for offices, and two electric passenger lifts running at the rate of 250ft. per minute. There is also an automatic lift for use of the staff. There are well over two thousand people on the permanent staff to be accommodated. No radiators will be used, but the floors of the corridors will be laid with a prepared material in which the heating pipes will be embedded, so that the floor itself will radiate the heat throughout the corridors. Mr. Herbert O. Ellis, of Fenchurch-street, E.C., is the architect.

NEW CATHEDRAL CHURCH AND PRESBYTERY, RAMSEY, I.O.M.

This building stands in an exposed position facing the sea, and is not orientated. The external walls are hollow, the outer thickness being of rubble, obtained from old buildings demolished on the site, and the inner thickness of smooth local bricks. In the church these have been lime-washed instead of plastered. The stone used for the church windows, the doorways, and arches, etc., is "Bramley Fall." The roofs are covered with greyish-red sand-faced tiles. The interior of the church is kept plain and simple except at the (quasi) east end, where a coloured and gilded triptych gives a centre of interest. The altar and reredos are of grey Forest of Dean stone. On the (quasi) south side are the Lady-chapel, baptistry, and vestries. At the (quasi) west end is a choir gallery under the tower arch. The internal length of the church is 76ft. 6in. and the width 22ft. It has no aisles. Since the photographs were taken, a set of Stations of the Cross, carved in wood and coloured and gilded, has been added. The benches shown in the interior were an temporary. The contractors were Messrs. Sherman and Son, of Boston, Lincolnshire. The triptych was made and carved by Mr. G. Ratcliff, of 2, Millow street, Old-street, E.C.; the pictorial panels were painted by Miss Eurlison, of 2, Elm row, Hampstead, and the remainder of the colouring and gilding was executed by Mr. G. Tosi, of Leamington-place, Edmonton-road, S.W. The wrought ironwork throughout the church is by Messrs. W. Pennington and Reynolds, Ltd., of Old Town, Clapham, S.W. Mr. G. Gilbert Scott, of Gray's Inn, is the architect.

SKETCHES IN CAMBRIDGESHIRE AND LINCOLNSHIRE.

The subjects of these sketches, made by Mr. J. E. F. Cowper, whilst Pugin Travelling Student, 1911, are so well known that little description is necessary of either of them. The grouping of the roofs, leading up gradually to the broach-spire of St. Mary's Church, Frampton, is very fine, and this view from the south-east shows best how this effect is obtained. The lead and tiled roofs, the warm, mellow colour of the stone, and the lofty towers behind form a most delightful study of colour, and serve to soften the somewhat masculine lines of the tower. The spire is excellently designed. The spire and tower of St. Leonard's, Levington, is one of the most successful of the many attempts to weld the spire into the tower. This is achieved at Levington by the use of small parapeted turrets placed over the spire buttresses. This arrangement gives a continuous outline with no awkward breaks at

the angles, so that even when seen on the diagonal the combination is good and insures a satisfactory contour. All Saints Church, Paston, is a small village church near Peterborough. The combination of the tower and spire here is very typical of the whole county, but otherwise of no special interest. The sketch of the Market Hall, Peterborough, shows the end elevation, which we do not remember to have seen illustrated before. The subject has often furnished picturesque studies showing the building as a whole; but the present partial drawing has the further advantage of being very suggestive.

By an unfortunate printer's error the address of the Beaver Board Co., Ltd., whose speciality we commented upon in our issue recently, was printed as 16, Chesapeake, instead of 16, Eastcheap, E.C.; hence the reason for the return of the letters of several of our correspondents. Will they kindly address their inquiries again to Dept. B, The Beaver Co., Ltd., 16, Eastcheap, E.C.3—when the company will be happy to send their booklet on the advantages and possibilities of Beaver Board.

PROFESSIONAL AND TRADE SOCIETIES.

BIRMINGHAM ARCHITECTURAL SOCIETY.—Mr. Lawrence Weaver lectured on "The Development of the Renaissance in Scotland," last Friday. Mr. C. Bateman presided. Mr. Weaver pointed out that although most learned works had been written on the Baronial buildings of Scotland, no attention had been given to the later work, which included in date and general treatment with that of Sir Christopher Wren and his followers in England. It was notable that the first impact of the reborn Classical taste reached Scotland direct from France, whereas England owed it to an Italian first, and later to Germans and Flemings. At Falkland Palace and Stirling Castle the first evidences of the new manner were to be seen. Sir William Bruce, the architect of the additions made to Holyrood Palace in 1671, was to be regarded as the Scottish Wren, though he fell far behind Wren in personal genius. Still, he was the man who established the full Palladian manner in Scotland, and he was fully followed by William Adam, the father of the famous Brothers Adam.

EDINBURGH ARCHITECTURAL ASSOCIATION.—A meeting of the Associate section of the Edinburgh Architectural Association was held on the 21st inst. in the Association Rooms, 10, St. Andrew's Place, Edinburgh. Mr. W. J. Walker took the chair. Mr. J. Campbell Mitchell, A.R.S.A., gave a lecture on "The Study of Nature by the Student of Decorative Art." The lecturer spoke of the important place which ornament holds in the life and daily surroundings of man, and his instinctive desire to decorate and make beautiful that which he had found to be useful. His remarks were lessons to be learned from humble sources—decoration of the cottage doostep and hearth-stone. Drawings of examples noted during rambles in the country were shown, and the principles which they illustrated were explained. The study of historic ornament, and the importance of the student becoming thoroughly familiar with the plant and floral forms upon which many examples are based were emphasised, and the principles in construction as learned from the study of good ornament, and the characteristics in plant growth which have been made use of by the ornamentists of the past referred to. The right and wrong application of ornament, and Nature's teaching regarding the laws of scale, distribution, and fitness were pointed out. The lecture was illustrated by diagrams, blackboard drawings, and specimens of skins of wild animals, shells, plants, and flowers.

LONDON ASSOCIATION OF MASTER STONEMASONS.—The annual meeting of this association was held at Cannon-street Hotel, E.C., on Thursday, March 14, when the following were present: Mr. Fred Corben (president) in the chair, Mr. C. W. Courtney, J.P. (vice-president), Mr. F.

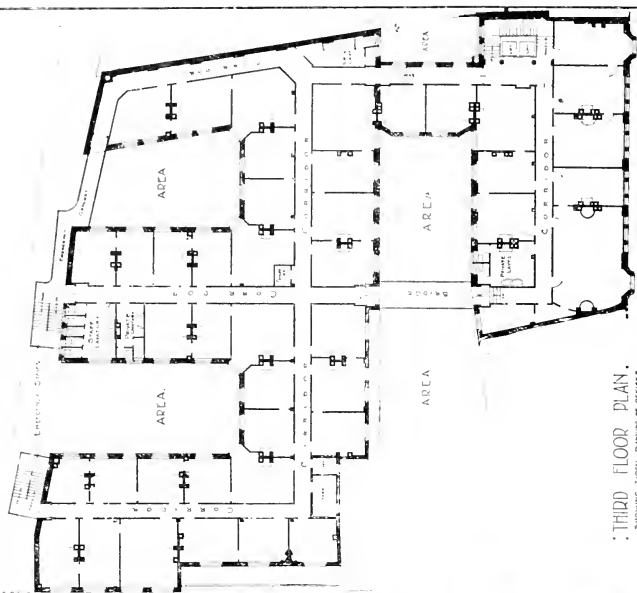
J. Barnes, C.C., Mr. T. Beckley, Mr. J. Byssouth, Mr. W. Bryant, Mr. William Bryant, Mr. E. J. Fox, Mr. E. Grice, Mr. H. J. E. Lucas, Mr. E. Frank Mortimer, Mr. E. Morris, Mr. W. Pangbourne, Mr. Ernest E. Way, Mr. J. Way, Mr. Walpole Collins (hon. sec. and treasurer). A cordial vote of thanks was accorded to Mr. Fred Corben for the services rendered by him to the association during the past year, and Mr. C. W. Courtney, J.P., was unanimously elected president for the coming year. Mr. Fred Corben, on relinquishing the office of president, became ex-president. Mr. Stephen Collins, M.P., and Mr. T. Sturge Catterell, J.P., were elected vice-presidents, and the following were chosen to serve on the committee: Mr. T. Beckley, Mr. E. Grice, Mr. F. Mortimer, Mr. W. Pangbourne, Mr. Ernest E. Way, Mr. J. Byssouth, Mr. Walpole Collins was re-elected as hon. sec. and treasurer.

NORTHERN ARCHITECTURAL ASSOCIATION.—The annual meeting of the association was held at the offices in Highgate-place, Newcastle-upon-Tyne, on the 26th inst. Mr. H. C. Charlewood, F.R.I.B.A., president, occupied the chair. In their report the council expressed regret that the depression in the building and allied trades continues. The membership was 224 as compared with 233 last year, the decrease being chiefly in the class of Associates. Mr. F. W. Rich and Mr. J. Oswald had been appointed to attend meetings of the sub-committees of the corporation formed for the purpose of Part II of the House and Town Planning Act. The council had made representations to the Royal Institute suggesting that the appointment of clerks of works should, in future, be made by the architects. Prizes had been awarded as follows: Measured drawings (age limit 25), Mr. J. H. Hadden; (age limit 21), Mr. H. St. J. Harrison; architectural sketches (age limit 25), Mr. W. Milburn; (age limit 21), Mr. H. St. J. Harrison; Glover studentship, Mr. A. E. Lowe; design for a pavilion to be erected in an Italian garden in England, Mr. M. K. Glass and Mr. K. Glover. Some of the drawings submitted were well worthy of reproduction. The General Fund opened with a balance of £29 7s. 9d., and closed with a balance in hand of £33 1s. 9d. On the motion of Mr. G. T. Brown, F.R.I.B.A., the report and accounts were adopted as eminently satisfactory. The prizes were presented to the successful students by the president.

The following officers and council were declared duly elected for the ensuing session: President, Mr. Wm. Milburn; vice-president, Mr. R. Purns Dick; hon. treasurer, Mr. J. T. Cackett; hon. secretary, Mr. C. S. Errington; hon. librarian, Mr. J. Bruce; assistant hon. secretary, Mr. C. I. Greenhow; council, Mr. G. T. Brown, Mr. H. C. Charlewood, Mr. F. E. Dotechin, Mr. W. T. Jones, Mr. J. Oswald, Mr. A. B. Plummer, Mr. F. W. Rich, Mr. A. K. Tasker, Mr. J. W. Taylor, Mr. C. Walker, Mr. H. Wood, Mr. A. Ash, Mr. M. G. Martinon, Mr. R. A. Wilson, Mr. J. Hall, hon. local secretary for Sunderland; Mr. J. H. Morton, hon. local secretary for South Shields; Mr. W. J. Moscrop, hon. local secretary for Darlington. The new president (Mr. William Milburn) having been installed, spoke in acknowledgement, saying that if he handed the chair of office to his successor with the association in the same healthy condition as it was at the close of the second term of Mr. Charlewood's service he would be delighted. He moved a vote of thanks to Mr. Charlewood for his devoted work. Mr. R. Purns Dick (vice-president) also spoke, and the thanks of the members were heartily accorded to the retired president. The hon. secretary (Mr. C. S. Errington) was also complimented upon his work and thanked.

At Alnwick on Friday, a Local Government Board inquiry was held by Mr. A. A. G. Malet, M.P.C., an inspector under the Board, into the application of the Public Health Commission for sanction to borrow £4000 for water supply works for the town. Mr. H. Taylor, C.E., of Newcastle-upon-Tyne, explained the proposals. There was no opposition.

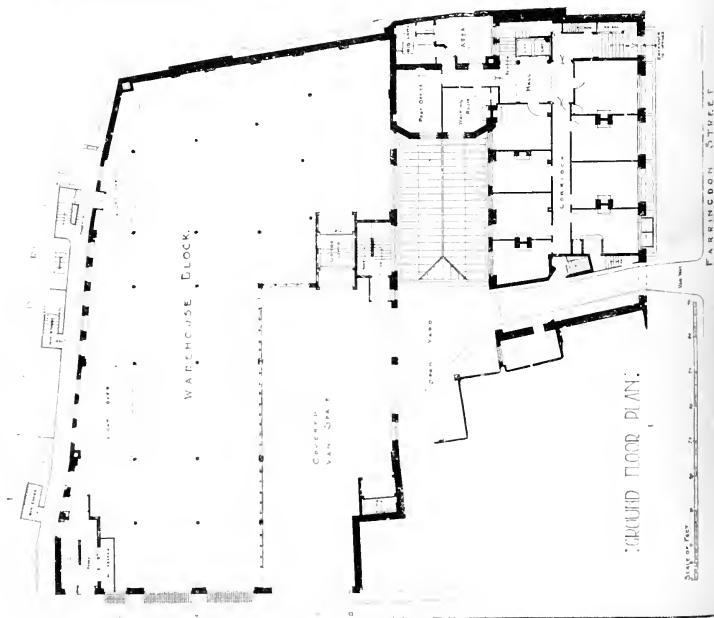
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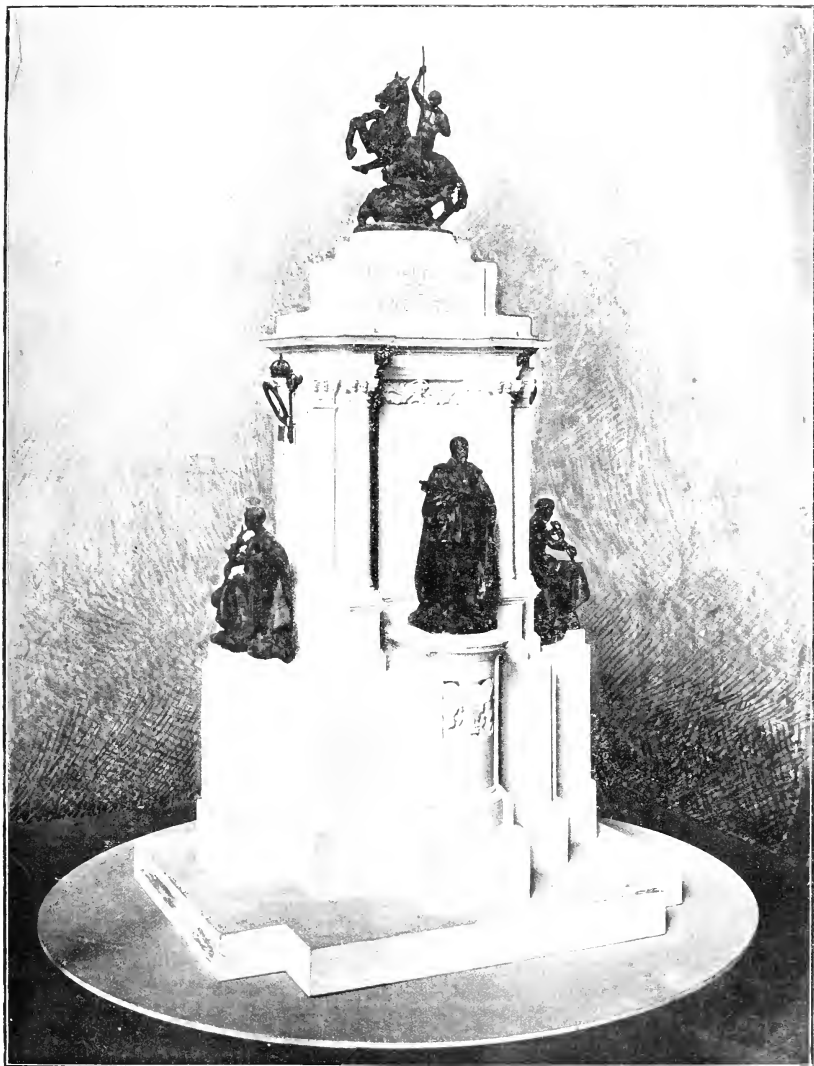
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THE KING EDWARD MEMORIAL TO BE ERECTED IN THE GREEN PARK
 MR. E. L. LUTYENS, F.R.I.B.A., Architect; MR. BERTRAM MACKENNAI, A.R.A., Sculptor

THE KING EDWARD MEMORIAL IN
 THE GREEN PARK.

The General Committee of the King Edward VII. Memorial Fund, at a meeting held at the Mansion House, have fully approved of the model by Mr. Bertram Mackennai, A.R.A.,

for the monument to be erected at the Piccadilly end of the Great Walk in the Green Park.

The memorial will cost £20,000, and is expected to take four years to execute. It is to be of Portland stone, 45ft. in height, surmounted by a bronze group representing

St. George and the Dragon. On the opposite side, facing Buckingham Palace, will show in our illustration from a photograph of Mr. Mackennai's model, to stand a bronze statue of King Edward, with pinnacles 8 ft. 10 in. high. The figure is to be 14 ft. 6 in. and costumed, bearing the Order of St. George, with



LEGAL INTELLIGENCE.

CLAIM BY A QUANTITY SURVEYOR.—R. E. Carpenter and Son, quantity surveyors, 112, St. Peter's-road, Leicester, sued Edward Baxter, cashier, 192, Upperthorpe, Sheffield, for £4,480. At last week, at the Leicester County Court, for professional services, etc., R. E. A. Loeley, for the plaintiffs, said the defendant contemplated erecting a house, and plaintiff claimed 25 per cent. on the lowest tender sent in for the erection of this house, and £4 10s. in respect of payments for the work. Mr. Carpenter received his instructions from the architect for the defendant, and was admittedly employed by the defendant, as Mr. Carpenter received a letter from the architect asking him what his charges would be for taking out quantities a house to cost about £500. He replied that his charges would be 25 per cent. plus out on payments. Plaintiff's terms were accepted in writing on November 29. The plan was sent to Mr. Carpenter, and quantities were prepared by Mr. Carpenter, and submitted to Mr. F. H. Wrench, the architect. Subsequently when the tenders were sent in, the cost was far over £500, and have been there ever since. Mr. Wrench said Mr. Wilson submitted the matter to the County Court within the jurisdiction of the Leicester Court, on the ground that the contract was made in Sheffield.—His Honour overruled the objection. Mr. Carpenter, quantity surveyor, Leicester, corroborated Loeley's opinion. Mr. Wrench said: When the tenders were opened he believed the lowest one was for £580.—By Mr. Wilson: When Mr. Wrench wrote for him, after defendant had made his claim, I thought you will meet me over the cost, he did not know what was going on. He always regarded Mr. Baxter as responsible to him. It was unusual for an architect to take out his own quantities. The plans could not have been completed for £575, on the first specifications sent to him. Mr. Wrench, architect, 217, Upperthorpe, Sheffield, said he got out the plans for a house for the defendant. He told him that he did not take out the quantities, and that he probably sent them to Mr. Carpenter. Mr. Wrench said the defendant agreed, and witness told him that the cost would be 25 per cent. on the contract price. Defendant instructed witness to get in quantities, as soon as possible, and he got in five, the lowest of which cost £580. Defendant was priced at the cost being over £500, because he did think, almost from the first, that the house required by defendant could not be built for less than £600. Mr. Baxter criticised the plan. Mr. Christopher Smith, quantity surveyor, Birmingham, said it was quite customary for architects to employ quantity surveyors to get out quantities. No builder of any reputation would do so without quantities. If an architect got out the quantities, he charged 25 per cent. on the contract price. Mr. Wilson, for the defence, contended that there was no case against the defendant. If a debt had been incurred, it should be recovered from the architect, because the architect had not signed out the credit of the defendant. His Honour said it seemed to him to be merely a question of who should pay. There was no question about the work being well done.—Defendant said he gave Mr. Wrench a written quantity order for a house not to cost more than £550. He repeatedly told him not to go beyond that figure. After the plans had been passed by the architect, Mr. Wrench rang him up on the telephone, and asked whether he should cut out the quantities. He said this would be an additional cost of 25 per cent., and defendant replied he could if it was usual to do so. He meant by that it was usual to pay 25 per cent. beyond the 5 per cent. of his total cost. Mr. Loeley: Mr. Wrench did not mention to him that he should engage a quantity surveyor, and he had not heard of the name of Mr. Carpenter until afterwards. Mr. B. Withers, president of the Sheffield Society of Architects, said it was not the custom among Sheffield architects to employ quantity surveyors to take out quantities. He only knew two such cases, including the present one. His Honour, in giving judgment, said this was a matter of whether Mr. Carpenter had done this work: the question was, who was to pay him? The plaintiff had not, in his opinion, made out that the architect was responsible. His Honour employed the quantity surveyor. Mr. Wrench sent Mr. Carpenter to work, and he had no authority to pledge the credit of his client beyond £550, or to make a claim against the defendant.—Mr. Loeley asked for costs of execution for fourteen days, and this was granted. Notice of appeal has been given.

SEA WALL COLLAPSE AT SOUTHEAST.—City Surveyors to Pay £4,500 to Trustees.—At a hearing lasting for twenty-two days, this action was concluded on Wednesday before Mr.

Edward Pollock, High Court Official Referee. The action was brought by Sir John A. Hong, Sir George, Mr. W. Van Sommer, and Mr. John Marcus Poot O'Shea, trustees of the Bury Estate, Southend, against Messrs. Beadell, Wood, & Co., Ltd., surveyors. The plaintiffs alleged negligence in the execution of a plan and specifications, and also in the supervision of work carried out by a local contractor in connection with the development of that part of the first property known as the Tilden Hall estate, and also the Southchurch Estate. The plaintiffs alleged that one of the causes of the negligence was the collapse in the autumn of 1909 of parts of the sea wall. Remedial work, including the rebuilding of the sea wall and the mending up of certain roads, was afterwards carried out by the engineering firm of Sir Alexander Binnie, Dace and Co. The defendants repudiated the allegations of negligence, and said that the work had been properly carried out. In regard to the collapse of a part of the sea wall, the defendants pleaded that it was occasioned by the effects of a storm. The Official Referee held there had been negligence in the supervision of the rebuilding of the sea wall, and that the plaintiffs were entitled to £4,500, and that the defendants were entitled to £1,269 on the counter-claim, so that there would be a balance judgment for the plaintiffs for £4,480 odd, with costs.

THE CARPENTER ARCHITECT, LADY BUILDER, AND "MEN OF STRAW."—Judge Moss was occupied till a late hour at Rye House, Essex, last night, in hearing a claim by William Parry, Esq., builder, and Richard Williams, bricklayer, Rye, against Mrs. Annie Owen, a lady of independent means, of Rhudlan, for £121 (reduced to £119) to take out of his jurisdiction of the court for extras in building six houses, and for damages claimed £175 10s. damages for delay in completing the work and for payments made on plaintiffs' account.—Mr. Crabbe, for the plaintiffs, said that, although the defendant knew they were not without means, she had paid a tender of £1250 for erecting her six houses. From the start she had to find them money; she then took the whole control of the work out of the hands of the architect, and was continually interfering in the building, and giving him no chance of doing other than she ordered. The architect was a carpenter, and the certificates were sent direct to her; all the plaintiffs had to do was to sign them. She insisted on the plaintiffs ordering timber and material from tradesmen she selected, which, on timber alone, meant an increase of £20. The extras claimed were for what was required, and while the plaintiffs had paid local bills she left the plaintiffs to pay the tradesmen, and while the plaintiffs were fighting the case to get money to pay them.—William Parry said that as soon as the contract was signed he had £25 from the defendant to be used on work, and when he had completed £403 he had the rest of the money he had from the architect's certificate was 6d. which, in a generous mood, the defendant gave him. (Laughter.) One of his brothers had to go guarantee for him, and had come to grief over the transaction, another brother used his University scholarship money to finance him in the work. He signed many documents put before him by the defendant, and he did not know what he was doing, but so worried Mrs. Madden, for the defence, put in an unstamped document which set out that in consideration of the defendant increasing the contract to £1,300, the plaintiffs would make it include all extras, and if the work was completed by the defendant, then the original contract for £1,250 should stand. The plaintiff at first said he had not signed the document, then he admitted the signature, but said it was his handwriting. The Registrar having demanded £10 to stamp the stamp, and £1 his fee, the document was put in.—In cross-examination, the plaintiff said he had built houses, and the defendant knew he had, and he said, though he had not signed it, he had taken certain amounts of £1,000. The reason he had first denied signing the supplemental contract was that he signed such a multitude of documents, and did not know what he was doing, but he was not content with that. Owen was about. (Laughter.) Mr. Madden: You were clever enough to get the contract, knowing at the time you had no money. Had you a shilling in the world? More than that.—By Mr. Crabbe: Yes, five times that.—The witness added that the paper put in was a forgery from beginning to end.—Mr. Madden: Does not the charge of forgery come very bad from you who signed a gentleman's

name at Dymchurch?—That has got to be gone into, wrote the witness, but not entitled to be used to name Mrs. Owen's name at the foot of each letter when she was not available, because people would not trust me. She was like as if she was closed in the walls of Jericho. She sent out letters that she was ill in bed, which was her clearing the window. I only swore as such as I said that before God I had no knowledge of what was in the document. The case was stopped by the Judge, saying it was any case, and it was in the hands of the court. The contract put in, and a downwardly that all extras were to be paid for by the increased price of £1,500. As regards the plaintiffs having to pay extra for 20s. he felt that if the defendant had not paid the money, she was entitled to say what they should deal. The plaintiffs, though not at law, took a contract for £1,200, and had to be financed from the start. It was evident they knew nothing, not even on the day of the trial. The Judge said the counterclaim should be withdrawn, as he knew the position of the plaintiffs.—Mr. Madden said he would take judgment for the defendant, and withdraw the counterclaim, though he could not say that. The Judge said he felt the defendant had always paid in advance. He gave her judgment with costs, and allowed the counterclaim to be withdrawn.

SURVEYORS' FEES: AN ALLEGED CUSTOM.—READING INDUSTRIAL CO-OPERATIVE SOCIETY, LTD. v. PALMER.—In the Chancery Division. Mr. Justice Russell heard this case on March 22, 23, and 25. It raised an important question of an alleged custom in Reading and neighbourhood, and also in London, that the purchaser of land for building purposes, when a building plan had been approved by the vendor, surveyor, was liable to pay the fees of such surveyor; and also a question of construction of the conveyance of land to the plaintiffs. Mr. Frank Russell, K.C., and Mr. J. H. Russell, for the plaintiffs, and Mr. J. H. Russell, for the defendants, were represented by Mr. Micklethwait, K.C., and Mr. Stichel. In opening the case, Mr. Russell said that the action was commenced by originating summons in the first instance, and on the first day of the trial, the plaintiffs produced an indenture of conveyance by which certain land, 2½ acres in extent, in Grovelands-road, Reading, was conveyed by Sir Walter Palmer, Bart., to the plaintiffs. The defendants were Messrs. Eggington, Esq., Robert Claridge Shaw, and Richard Blake Harrison, who were the trustees of Sir Walter Palmer, who had died since the date of the conveyance, which was May 18, 1908. Under the conveyance, the defendants were to build a house, and the plaintiffs were to satisfy the vendors' charges, and the satisfaction of the vendors' surveyor. They had, of course, to pay their own surveyor's fees, and the defendants contended that they had also to pay the fees of Sir Walter Palmer's surveyor. It was contended that the plaintiffs, in support of the summons, and in the defendants' evidence in answer, they set up a custom, that notwithstanding the contract, there was a custom prevalent that the plaintiffs were bound to pay Sir William Palmer's surveyor's charges, and summons were taken out asking that the case should be put on the list for trial with witnesses, in order that the question of custom could be dealt with. The plaintiffs issued a writ claiming a declaration of the effect of the matter came before the Court. The conveyance contained a covenant on the part of the plaintiffs that they would observe and perform the covenants contained in the schedule. After reading the schedule, the effect of which was that the defendants to show that anything else was imported into the contract before the parties by reason of a special local custom. His Lordship agreed, and accordingly Mr. Micklethwait, for the plaintiffs, produced evidence in the judgment appearing below.—Mr. Russell called rebutting evidence, and Mr. Wm. Millar, F.S.I., an architect and surveyor who had carried on his profession at Reading for upwards of twenty years, was called as a witness. Mr. Millar said he acted for several building societies, and was paid by piecework or time. When buildings to be erected had to be approved by the vendors' surveyor, the costs of such buildings were paid by the vendors. When the contract was silent as to that, he always charged the vendors. He never charged the purchaser for approving plans unless there was a specific clause in the contract to that effect. Mr. Russell said he had heard of the evidence given as to a custom that where the contract is silent the purchaser should pay the costs.—There is no such custom in our part of the country, he said. He was called to give similar evidence. After the close of the plaintiffs' evidence, Mr. Micklethwait gave up the point of custom at Reading, but submitted that

of this case, that there is no such general usage necessity of giving notice. If the defendant had left only one old roll on the roof he would have come within the exemption. The Magistrate observed that he did not suppose there was any Act of Parliament which was so complicated and as difficult to decide upon as the Building Act, and the real truth was that each case had to be decided on its own merits. Reviewing the contentions advanced on either side, the Worship observed that he considered that the argument for the defence—viz., that you could not repair a zinc roof except by renewing it—was a sound one, because in so many cases renewal was a good deal more than repairing. The matter was a difficult one to decide; but what occurred to him was that the main structure of the roof remained, and he therefore held that this work amounted to nothing more than the repairing of an old roof. He therefore dismissed the summons.

Our Office Table.

At Tuesday's meeting of the London County Council, the Highways Committee reported that they have, with the improvements Committee, decided to submit again to the Council proposals to seek Parliamentary authority in respect of the construction of tramways from Southwark-street over the new St. Paul's Bridge to terminate underground at a point near Chisleide. The Finance Committee have asked to be furnished with information as to the probable financial results of such tramways, and they have expressed the opinion that the present proposal should not be submitted to the Council until the question of the apportionment of the proposed contribution of £530,000 towards the widening of St. Paul's churchyard as between the tramways and the improvement shall have been considered. The Highways Committee state that it is quite impossible at present to form any estimate of what the financial results of the scheme would be. It is proposed to direct the Special Committee on the Allocation of the Cost of Street Improvements to consider whether an apportionment as between tramways and improvements accounts shall be made, and if so, in what proportion.

An exhibition of paintings by Walter Howard Deverell will be opened on Monday next in Room XVIII. at the Tate Gallery, and will be on view for two or three months. This young artist, who was a close friend of Rossetti, was born in Virginia, U.S.A., in 1827, and died in 1884, before his early promise could be realised. His works are few in number, several having been destroyed, and the others were left unfinished at his death. His largest picture, the song scene from "Twelfth Night," in which Miss Siddall posed for Viola, and so became known to D. G. Rossetti, is being lent by Mrs. Steele Roberts, and Mr. J. R. Holliday, Sir Sigismund Neumann, and Mr. Wykeham Deverell, the surviving brother of the artist, are lending others. The trustees recently purchased "The Pet," "Lady of the Bird," originally called "The Pet," which was at the time in Sir Edward Burne-Jones's collection, from Mrs. Mackail. The portrait by Hunt of Deverell, who was the model for Claudio in Holman Hunt's "Claudio and Isabella," is at present on loan at the Tate Gallery in the Birmingham collection.

Several pre-Raphaelite pictures are also at the Tate Gallery. They include three small landscapes by Madox Brown; Rossetti's "Requiem," "Corluma," and other pictures by Madox Brown, Lewis, and Martineau; some drawings by Simon Solomon; several paintings by Burne-Jones, including the early "Siddonia," and "Clara von Bork"; and Dyce's "Portrait of a Child." The trustees recently purchased two small water-colours by Rossetti, "Mary Magdalene," and "The Magdalene," through the Lewis Fund. These are now exhibited in Room III., where is also placed Mr. G. A. Storey's "My Mother," painted in 1874, and presented to the Tate Gallery by the National Art Collections Fund.

In the old Norman church in the village of Heyshott, Sussex, the marriage was cele-

brated of Mr. Richard Colden Sanderson, son of Mr. and Mrs. Coldden-Sanderson, and only grandson of Richard Coldden, with Miss Dorothea Dircks, daughter of Mr. and Mrs. Rudolf Dircks. Mr. Dircks is well known to all architects as the eminent and courteous librarian of the Royal Institute of British Architects. Heyshott Church is closely associated with the Coldden family, for in that generation of the name, the family was shipwrecked. From its old flint tower, Richard Coldden was baptised, and marking the pew in which he sat is a copper plaque inscribed with these words: "In this place Richard Coldden, who loved his fellow men, was accustomed to worship God." And this wedding added to the village of Heyshott yet one more Coldden association.

The Council of the Royal English Arboricultural Society, who have had under consideration the question of death duties upon timber, state that there is no settled policy at the Inland Revenue Department in dealing with the question, and that the Board refuse to lay down any rules. As far as they can ascertain, such Estate Duty valuations as have been settled have been compromised without regard to any specific basis of calculation. It is a matter of great importance to all landowners, the estate duty on a basis should be settled. Estate Duty is not payable on timber only when it is realised, and yet the value of the timber has to be included in the aggregate valuation for the purpose of defining the rate of Estate Duty. There is consequently a great danger in many cases that the timber, or part of it, will be included in the value of an estate by reason of the inclusion of the real value for the purpose of ornament, sporting, or shelter, and duty will be paid on it without question. The Council have found it very difficult to hear of authentic cases of the settlement of Estate Duty valuations where the timber has been fully considered, and they will be very glad if anyone who has settled the point, or who now has it under consideration, would communicate with them at Haydon Bridge, Northumberland.

The theory that Central America was originally colonised by a people from the East, probably from Egypt, is said to have just received support from the discovery by Professor Wiven, of New York, of a city buried under volcanic ashes in the valley of Teococo, in Mexico. Furniture and statues, vases and ornaments, are there complete and almost undamaged. There is a temple with wall paintings comparatively fresh, all a few feet below the surface. Many of the articles displayed have a distinctly Egyptian cast, but others are strongly indicative of Indian origin.

It was stated at the Norwich Consistory Court, Saturday, that a pew which has been removed from the parish of Great Withingham, Norfolk, and sold for 12s. 6d., to a builder, and had since been used as pigsties and chicken-houses. The Rev. Percy Gethen, who applied for a faculty to remove more of the pews, said they were not part of the original furniture, and were a disfigurement of a fine old church. He had obtained the consent of the occupiers of the pews to their removal. The chancellor deprecated removing the pews without a faculty having been granted, and ordered the applicant to ascertain where they were in case it might be considered necessary to restore them to the church.

At a social meeting of the members of the Midland Arts Club held last Tuesday night at Birmingham, Mr. R. Catterson Smith delivered a lecture, illustrated with lantern slides, on "A Neglected Element in the Training of Artists." He spoke in favour of the cultivation of the power of making pictures in the mind, or visualisation, remarking that it would be helpful to the art students who would be associated with the artistic trades of the city. He considered the power of being able to see things clearly in the mind before they were committed to paper or into material was one of the most valuable means of designing, because of the great possibilities of development of individuality. He made a great distinction be-

tween what was called memory drawing and visualisation, observing that an object might be drawn from memory knowledge, but the visualisation was a distinctly higher plane of mental activity.

According to a recent patent by H. W. Flemming, of Marshgate Lane, Stratford, natural or artificial stone is hardened by treatment with arsenious acid and a soluble silicate, the proportions of the treating liquids being such that insoluble arsenates are formed, and silica is deposited in the pores of the stone. The stone is treated with the two solutions successively, the order being immaterial. Chalk, effrit, or railway cuttings may be treated in this manner. A composition for filling holes, cracks, or the like is also described, consisting of an acid mixture of, say, 9 parts of finely-divided silica and 12 parts of arsenic acid of specific gravity 1.4, and a basic mixture of 10 parts of alkaline silicate, and 6 parts of caustic lime, magnesia, or oxyta. The mixtures are made into a paste or are applied in successive layers.

The forty-second ordinary general meeting of shareholders of the Val de Travers Asphaltic Paving Company, Limited, will be held at 18, Hamilton House, 155, Bishopsgate, London, E.C., on Wednesday, April 3, 1912, at 12.30 o'clock p.m. After making the following appropriations: Depreciation and cost of maintaining plant and machinery, £2,411 0s. 3d.; written off cost of mining property, £1,000; written off cost of Neutral Concession, £882 7s. 1d.; written off cost of buildings, London, £164 12s. 7d.; depreciation in value of horses and harness, £64 10s. 6d.; the net profits of the year are £26,414 10s. 2d., which, with the sum brought forward, £529 3s. 4d., amounts to £26,943 13s. 6d. From this has to be deducted the interest on the debenture stock, amounting to £6,900. An interim dividend of 6d. per share was paid in October last. A further dividend of 1s. per share, free of income-tax, is now recommended, making together 1s. 6d. per share, or 7½ per cent. for the year. Out of the Compagnie Generale Fund the Board have placed to the credit of profit and loss £2,450, and recommended a bonus of 3d. per share in addition to the dividend proposed to be paid, the balance carried forward being £2,893 13s. 6d. The dividend and bonus will be payable on April 11. The directors report that, since the accounts were prepared, certain pending negotiations for dealing with one of their French Concessions have been completed, and an agreement has been entered into which provides for the immediate payment of the price of the land, the delivery of rock, or payment to the company of cash to the value of £10,000 over a period of years.

A useful little half-crown manual entitled "The Technique of Painting," by George M. Batz, Professor of the School of Art, Glasgow, is published by James Maclehoise and Sons, Glasgow. Mr. Fred H. Newbery, the Director of the School, contributes an introduction. Books on colours, tools, materials, and mediums, and other properties of the materials employed in painting, actually practising artists are rare. We do not know a good one, but this is reliable, and art students and draughtsmen will do well to get it.

A Local Government Board inquiry has been held at Wakefield relative to the application of the cooperation for permission to borrow £5,950 for street improvements. It is proposed to pull down shop frontiers at the top of Kirkgate to widen the approach to Warngate.

Mr. William Shillabeare Stevenson, an old and much respected resident of Newton Ferrers, passed away on Monday. The deceased at one time had an extensive business as builder and contractor, and was well-known in the Three Towns and neighbourhood. He was 72 years old.

There is on view at the London depot of the Duchess of Sutherland's Cripples' Guild, Ltd., 14, New Bond-street, W., a collection of ecclesiastical metalwork executed by crippled labour—some of it from old models and some from designs by architects, including Mr. Temple Moore, F.S.A.





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AND ENGINEERING JOURNAL.

Effingham House,

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"SUFFERING FOOLS GLADLY."

Willingly or unwillingly, this is what most architects have to do, but most of those who can do it willingly reap many advantages. They are less liable to offend their unwise clients, which in itself counts for something, because the more ignorant those clients are, the clearer will be the kinds of revenges they will be likely to fix on. The low-class Englishman commonly selects a mode which will practically fine his artistic agent a considerable sum in money, for that is a material in which the vulgar man commonly abounds, and of which the artist, being ill-paid, is often rather short. The one who is not may be fairly suspected of being, and often proves to be, no genuine artist, though he may be, morally, a very good man. The names of "popular" artists now no more will occur to some of our readers in this connection, and perhaps of some others who had "something in them," which did not freely lend itself to the sordid ambitions of the middle, and more especially of the manufacturing, classes, who worship the god of this world as an epigrammatic Apostle once dared to call money. The apostles who follow him in this are few, and mostly apostles made by men.

Fools are of many sorts, from those who know nothing, to those who know much. The most unpopular sort are these who, some time after their death, turn out to have been no fools, or not such fools as people fancied them. Men were once looked on as fools who had a notion that streets and squares, and churches and theatres, not to mention halls and houses, could be lighted by gas; which its opponents, a hundred years ago, called "smoke." Nobody laughs at "smoke-lighting" now; it has gained the day too nearly. They used to laugh at running trains by boiling water; they don't laugh now. What they laugh at now are the safeguards which are long since devised against accidents; the proposal, for instance, that no train should go faster than eight miles an hour. They were well-meaning, though not far-seeing persons, who devised these needless and unworkable precautions. Things not much wiser have been recommended lately or air-ships, for submarines, and the like. We might as well recognise that the world is full of fools, many of whom have not acquired their title, nor will, probably, in this world; while many others, who deserve an opposite name, are just as far from getting it. Some day, all of them who are not forgotten, will have the rank by merit; but may Fate deliver us all from it who don't deserve it?

Perhaps the hardest sort of fools to be

suffered gladly are the hybrid ones; with one strain of folly in their nature derived, say, from Lord Beaconsfield, another from Mr. Cobden, a third from Palmerston, and a fourth from some honest preacher of what are now "the middle ages"; one line of descent traceable through a mother, who, biased them when very young; another from a father who had had them partly into his own way of thinking before they were six or eight years old; and the others from sundry opposing influences long before they were 20 years of age. All these doctrines may be utterly inconsistent with each other; but the man they have captured does not see their inconsistency, and believes he is fairly trying to realise them all. Should he have accepted any belief on scientific grounds, or even on pseudo-scientific ones, this belief and the rest will never be on quite equal terms while any of them are held. There are many kinds of fools, and we have referred to very few of them. Some are for doing nothing, and some are for doing what will be of more harm than good. Few are for what will be an unmixt benefit—a blessing with no curse joined to it. Generally you buy the benefits in one direction at the cost of sacrifices in another; or the advantage of today has to be paid for by a loss in a year's, or in ten or twenty years' time. M. Anatole France, in "La Pierre Blanche," an interesting book which begins with prehistoric times, and goes on through Greek and Roman days to the distant ones, to the remote future, tells us of what must have happened in prehistoric times in Greek and Roman times, touches on the days of St. Paul, and on what he thinks will happen hereafter. He says the people always gaining power, but not always using it very wisely; and even he does not venture very far ahead in his race of prophecy. "Nothing," one of his characters says, "is absolutely good, and nothing absolutely evil. The clay soil of which *amphora* could be made would mean a waste of time and labour were olive trees set to grow in it; for matter ceaselessly changes, and its perpetual change preserves life in the universe." To some such thoughts as these our great-grandfathers came back, and perhaps to some such ideas as succeeded them our children, or our grandchildren, will also return. "Nothing there to come, and Nothing past. But one eternal now does ever last." No doubt fools were, fools are, and fools will be, though it may take a better fool-scorer than ours to prove them all alike in kind.

Yet, alike or not alike, they have to be suffered, and, if possible, suffered gladly.

They have so many friends and relatives that it does not arise up to set up an out-spoken quarrel with them. However they treat you, and whatever silly things they ask for, it is safer never to meet them with a downright "No." Put the evil day off till to-morrow, or if you can till next week, or next month, or next year. Next year perhaps the fool that worries most may be dead, and though there may be plenty of others, perhaps no other quite like him. If fools remain, the subject they are fabled on varies endlessly; the world would not last if it always remained the same. So try with all your might to sit your most troublesome fool out. You may die, and so may he, and in either case there is "silence for awhile," for even fools cannot be always thinking of what they did in the past, or always dreaming of what they mean to do in the future. Let them rest, and don't stir them up when they let you be. "Bible a week," and "suffer them gladly."

ESTIMATING FOR REINFORCED-CONCRETE WORK—VIII.

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SURFACE FINISHINGS FOR CONCRETE.

Concrete Walls.—The surfaces of concrete walls as left after removing the sheeting, generally present a patchy and somewhat unpleasant appearance, which is partly caused by the concrete being laid in detached quantities, and partly owing to the marks left by the sheeting. From an aesthetic point of view, it is, therefore, oftentimes considered desirable to adopt some arrangement for cleaning down and finishing the exposed concrete surfaces. A brief description of some of the methods employed is now given.

Cement Wash.—For ordinary purposes the wall surfaces may be brushed over with a thick cement wash, after stopping and pointing any holes or air-cracks which may be found when the sheeting has been removed.

Scrubbing.—In some cases the forms and sheeting are taken down before the concrete has had time to thoroughly harden. The surface is then brushed or scrubbed with hard wire-brushes, a light stream of water from a hose or can being at the same time directed on to the concrete face. By this means the superficial film of cement is removed from the concrete, and the uneven surface of the aggregate exposed, thus giving a pleasing rough texture to the concrete face, which gradually hardens on exposure to the weather. If desired, the external face of concrete walls may be finished with a thin

cut of superior concrete, from 1 in. to 2 in. in thickness, laid against the face of the sheeting, the remaining portion of the wall space being filled in with the ordinary concrete mixture, the whole being well rammed into position.

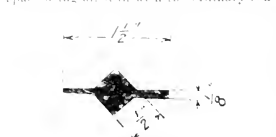


Fig. 1.

crete mixture, the whole being well rammed into position.

In localities where white or coloured marble waste, granite and sandstone, etc., is available, such materials may be used as an aggregate for the superior description of facing concrete. When thoroughly scrubbed down with water and wire brushes so as to expose the component portions of the concrete aggregate, a rich appearance is given to the concrete work.

Rubbing Down.—Concrete surfaces



Fig. 2.

which are not too hard to permit the effective use of wire brushes may be finished by washing with water and rubbing down with bricks of common, country, or hard stone.

Bush Hammering.—The general appearance of concrete surfaces may be much improved by bush hammering. A bush hammer consists of a heavy steel hammer with a large face, having a series of projections thereon. The effect of bush hammering is to remove the facing skin of cement, and give a robust roughened appearance to the concrete surface. For

to heavy wear, the surface is usually finished with a superior description of concrete for a depth of about 1 in. The superior concrete is composed of one part Portland cement to two parts of fine granite chippings, the face being afterwards well trowelled to a fair and even surface. If an indented, fluted, or rough-cast surface is required, the trowelled face of the concrete is finished with a small hand rolling tool, known as an "indent," "ing," "spike," "rough-cast," or "fluted," roller, according to the particular pattern used. In some cases the concrete is finished with a "border" roller, so as to provide an ornamental border about 6 in. wide around the paving.

SYSTEMS OF STEEL REINFORCEMENT FOR CONCRETE WORK.

Numerous methods of constructing or arranging the metal reinforcement for concrete structures have been devised, for each of which certain advantages are claimed. It would occupy too much space to give a detailed description of all the various systems now available, but we append a few particulars of the following, each good of their kind.

KAHN TRUSSED BAR SYSTEM.

(The Trussed Concrete Steel Co., Ltd., 82, Caxton House, Westminster, S.W.)

This form of reinforcement consists of patented and specially-rolled sections of steel bar of varying sizes. A section of the Fig. 1, by 1 in. Kahn bar is shown in Fig. 1. The diagonal projecting wings or ribs of the bars are machine-cut at intervals, and turned up so as to form stirrup-bars or shear members. The stirrup-bars are thus rigidly connected to the main tension-bars, as indicated in Fig. 2. The general arrangement of the

is required, the section of Kahn bar shown in Fig. 4 is used, viz.:—

KAHN TRUSSED BAR (HEAVY SECTION).

Size of bar.	Weight per ft. run.	Sectional area.	Standard length of stirrups.
in.	lb.	in.	in.
2 1/2 x 1 1/2	6.8	2.00	24

It has been found that the concrete in beams, etc., should be reinforced both in the vertical and in the horizontal planes, in order to withstand the shearing as well as the tensile stresses which may occur within the concrete. The patentees of the Kahn bar claim that by this system not only is the concrete reinforced in the vertical and horizontal planes, but at the same time the shear reinforcing members are rigidly connected to the horizontal reinforcement. The shear members are also so arranged that they are inclined at an angle of 45 deg., and thus practically cross the line of shear curvature at right angles.

Complete detail drawings of suitable reinforced-concrete construction are prepared by the patentees of the system for all works in which Kahn reinforcing-bars are used. The necessary size and dimensions of each reinforcing bar required is carefully determined, and sent from the

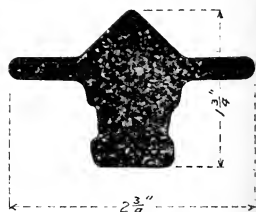


Fig. 4.

engineering works with the stirrups all ready cut and complete for fixing.

THE KAHN RIB-BAR.

In addition to the Kahn trussed bars with fixed stirrups or shear members, another form of steel bar having no long projecting wings or stirrups—known as the "Kahn rib bar"—is also manufactured by this firm. It consists of a specially rolled section, having a series of raised fillets or ribs arranged transversely at short intervals along the length of the bar as indicated in Fig. 4a. By this arrangement a mechanical bond is formed between the steel and concrete, and a greater adhesion obtained between the two materials as compared with the ordinary plain sections of steel bar when embedded in concrete.

For soundproof floors of light construction, a system of hollow floor-tiles supported on a series of concrete beams reinforced with Kahn steel bars is adopted where this type of floor is required.

The Kahn reinforced system also provides a patent sheeting known as "Hy-rib" (high rib) steel sheeting for use in the construction of partitions, roofs, floors, conduits, sewers, culverts, etc. It consists of rolled-steel sheets arranged with a series of perforated corrugations, and stiffened at intervals with high ribs, as indicated in Fig. 4B. The "Hy-rib" sheeting may be obtained in different thicknesses or weights, according to local requirements. It is manufactured from No. 28, No. 26, and No. 24 U.S. standard-gauge steel sheets, and can be supplied either in

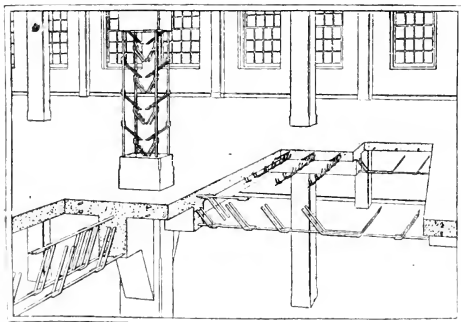


Fig. 3.

large works primarily bush-hammers are used.

Sand Blasting.—A roughened surface with a fine and even finish may also be given to concrete by the use of a sand-blast machine.

Concrete Pavings.—For general purposes the concrete paving is floated to an even surface whilst being laid. A little additional cement is then dusted over the surface and the whole finished with a smooth trowelled face. For pavings subject

Kahn bar system for columns, beams, floor slabs, etc., is shown in Fig. 3. The following sizes and weights of bars are manufactured, viz.:—

WEIGHTS AND SIZES OF KAHN TRUSSED BARS.

Size of bar.	Weight per ft. run.	Sectional area.	Standard length of stirrups.
in.	lb.	in.	in.
1 1/2 x 1 1/2	11	1.1	5
2 x 1 1/2	17	1.7	12
2 1/2 x 1 1/2	27	2.7	18

For beams, etc., where greater strength

straight sheets or bent to any desired curve.

INDENTED-BAR SYSTEM.

(The Indented Bar and Concrete Engineering Co., Ltd., Queen Anne's Chambers, Westminster, S.W.)

The metal reinforcement consists of square or round indented steel bars (see Figs. 5 and 6), which are embedded in the concrete. These bars are arranged to take the tensile stresses in concrete beams,

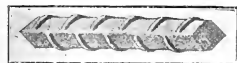


FIG. 4A.



FIG. 6.

floors, etc., whilst at the same time the indentations provide a mechanical bond between the steel and concrete, thus increasing the adhesive strength between the two materials. Round or square steel indented bars are ordinarily rolled in

hollow tiles as indicated in the sketches.

The tiles are arranged with a lip or projection which forms the bottom of the concrete beam, so that the whole of the under surface of the floor is covered by the tiles (which are roughened to receive plaster).

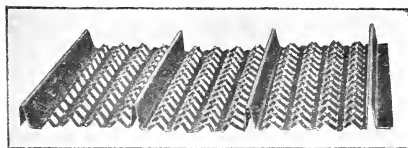


FIG. 4B.

lengths up to 40ft. or 50ft.; but, if required, some of these sections may be obtained in 70ft. or 80ft. lengths. The sectional area of each square indented bar is the same throughout its entire length, whilst the effective sectional area of a round indented bar is from $\frac{1}{2}$ to 2 per cent.



FIG. 5.

less than that of a smooth bar of the same weight. The standard sizes, weights, and sectional areas of indented steel bars are as follows:—

WEIGHT AND SECTIONAL AREA OF SQUARE INDENTED STEEL BARS.

Size of bar, in.	Weight per ft. run, lb.	Sectional area, in. sq.
1 square	24	4.06
1 1/2	38	3.11
2	56	2.25
2 1/2	1.33	1.31
3	1.91	0.96
4	2.69	0.77
5	3.40	0.60
6	5.21	0.56

WEIGHT AND SECTIONAL AREA OF ROUND INDENTED STEEL BARS.

Size of bar, in. diam.	Weight per ft. run, lb.	Sectional area, in. sq.
1	38	0.31
1 1/2	57	0.19
2	1.05	0.10
2 1/2	1.32	0.07
3	2.06	0.05
4	2.69	0.04
5	4.21	0.03
6	6.06	0.02

A combination of reinforced-concrete and fire-resisting hollow-floor construction (known as the "Dentile" floor system) has also been introduced by this firm for use with the indented-bar reinforcement. Fig. 7 is a sketch of the "bridge" tile arrangement of the Dentile

Diameter of Sub.	Weight of Round Bar per foot, lb.	Weight of Square Bar per foot, lb.
1/2	10	10
3/4	10 1/2	11 1/2
1	12	12 1/2
1 1/4	14	14 1/2
1 1/2	15 1/2	16 1/2
1 3/4	17 1/2	18 1/2
2	20	21 1/2
2 1/4	22 1/2	24 1/2
2 1/2	24 1/2	26 1/2
2 3/4	26 1/2	28 1/2
3	28 1/2	30 1/2
3 1/4	30 1/2	32 1/2
3 1/2	32 1/2	34 1/2
3 3/4	34 1/2	36 1/2
4	36 1/2	38 1/2
4 1/4	38 1/2	40 1/2
4 1/2	40 1/2	42 1/2
4 3/4	42 1/2	44 1/2
5	44 1/2	46 1/2
5 1/4	46 1/2	48 1/2
5 1/2	48 1/2	50 1/2
5 3/4	50 1/2	52 1/2
6	52 1/2	54 1/2
6 1/4	54 1/2	56 1/2
6 1/2	56 1/2	58 1/2
6 3/4	58 1/2	60 1/2
7	60 1/2	62 1/2
7 1/4	62 1/2	64 1/2
7 1/2	64 1/2	66 1/2
7 3/4	66 1/2	68 1/2
8	68 1/2	70 1/2
8 1/4	70 1/2	72 1/2
8 1/2	72 1/2	74 1/2
8 3/4	74 1/2	76 1/2
9	76 1/2	78 1/2
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10 3/4	90 1/2	92 1/2
11	92 1/2	94 1/2
11 1/4	94 1/2	96 1/2
11 1/2	96 1/2	98 1/2
11 3/4	98 1/2	100 1/2
12	100 1/2	102 1/2
12 1/4	102 1/2	104 1/2
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15	124 1/2	126 1/2
15 1/4	126 1/2	128 1/2
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15 3/4	130 1/2	132 1/2
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16 1/4	134 1/2	136 1/2
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57 3/4	466 1/2	468 1/2
58	468 1/2	470 1/2
58 1/4	470 1/2	472 1/2
58 1/2	472 1/2	474 1/2
58 3/4	474 1/2	476 1/2
59	476 1/2	478 1/2
59 1/4	478 1/2	480 1/2
59 1/2	480 1/2	482 1/2
59 3/4	482 1/2	484 1/2
60	484 1/2	486 1/2
60 1/4	486 1/2	488 1/2
60 1/2	488 1/2	490 1/2
60 3/4	490 1/2	492 1/2
61	492 1/2	494 1/2
61 1/4	494 1/2	496 1/2
61 1/2	496 1/2	498 1/2
61 3/4	498 1/2	500 1/2
62	500 1/2	502 1/2
62 1/4	502 1/2	504 1/2
62 1/2	504 1/2	506 1/2
62 3/4	506 1/2	508 1/2
63	508 1/2	510 1/2
63 1/4	510 1/2	512 1/2
63 1/2	512 1/2	514 1/2
63 3/4	514 1/2	516 1/2
64	516 1/2	518 1/2
64 1/4	518 1/2	520 1/2
64 1/2	520 1/2	522 1/2
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65 1/4	526 1/2	528 1/2
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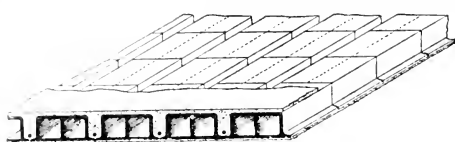


FIG. 7.

Don't forget that it can be laid horizontally up to widths of 4ft. or more with a great deal of safety with out immediate support; but the arched form is recommended for wider spans. It is allowed for the possibility of its being used in its great rigidity as a form of iron or steel in the girders of a roof. The supporting girds are of 2ft. or 3ft. ordinary spans up to from 2ft. to 4ft. in height. The joists are used. Over the spans riveted girders may be used. All who have used this system know that it is lighter and less costly than a timber truss of equivalent strength. It may be used.

A few years after the system was introduced a series of small roofs of 12ft. span were put up for a factory and workshop. We do not our

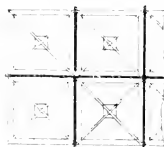


FIG. 8.

was anything that was so different from the other systems which Messrs. Dunn and Stewart put up for the treatment of the roofs, columns, and girders in their buildings. The result was that their

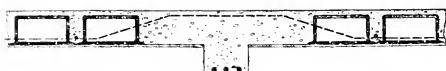


FIG. 9.

system was so largely adopted, and so fully specified by public authorities for building construction. Among the many concrete roofs by fire to which their system has been subjected, recorded in its own book volumes, we need only remind readers of the fires at the Civil Service Company's Stores in the Haymarket in 1881 and 1903 at the Criterion Restaurant, Broad-street House, E.C. 4, Don't Hall, Westminster, and the Merchant Venturers' Technical College, Bristol, the complete realisation of the fire being not only fully secured in every instance, as was anticipated, but it will be when any one of the long list of buildings where the system has been adopted.

The Dunn system is used in cost according to the span and also the load to be carried. For 12ft. spans, embedded in a brick wall, the cost of 12ft. span, per square foot, would vary from £3.10s. to £10.0s. per square foot. The price of £3.10s. per square foot is for the concrete work and the reinforcement, with out steel joists. The cost of the steel joists is added to the cost of the concrete work.

are required, the cost would vary from £5.10s. to £10.0s. according to the span and the number of fittings for connections required. The price of £10.0s. for a large span necessitating compound girders.

ARCHIBALD D. BAWNAS AND SONS, LTD.

39, Victoria-street, Westminster; 81, 4, works road, S.W.; East Moors, Cardiff, and 65, Quay Side, Newcastle-on-Tyne, are specialists for a system of fire-proof flooring, consisting of ferro-cement in concrete, laid 1 in. upon flat centering, and encasing 3in. steel joists 30in. apart, bearing on the lower flanges of 6in. joists in 7ft. bays of 16ft. span, or instead 3 1/2 in. joists, various sections of reinforcement bars according to the spans, and leads to be carried, which has decided advantages. The cost in London for a 12ft. bearing, including joists, is about 7s. net per yard super, for a safe load of 20wt. per square foot. They are also patentees of a solid-girder floor laid between steel joists which are placed at 2ft. and 2ft. 3in. centers. This system avoids the use of centering, and enables the ceilings to be plastered a few days after completion. The total depth occupied is 6in. Prices, from 8s. net per square yard laid in London and varying according to the span and load to be carried.

STEWART'S GRANULITIC CO., LTD.

1, Finchchurch-street, E.C. 4, are the makers of the patent granolithic fire-resisting floors bearing the company's name. It has special advantages, such as a maximum of head space and spans of, say, 50ft. and 30ft. at even, with no joists whatever. For ordinary flat floors, 10ft. span,

and with a thickness of only 2 1/2 in., a weight equal to 11 1/2 wt. on the square foot has been placed without the material showing signs of failure. The prices of the flooring are additional on the spans and leads to be carried, but may be said to vary from 8s. 6d. per square yard. We have so often illustrated examples that nothing more needs saying here.

THE END.

LIGNO CONCRETE.

By GERALD O. CASE.

The following is an abstract of a paper read on Monday, April 1, 1912, at the Institution of Electrical Engineers, before the Society of Engineers.

In the introductory remarks the author refers to the use in America and Australasia of concrete in combination with timber, and points out that while the concrete effectively protects the timber, it is not used to the greatest advantage. The object of the paper is to ascertain if it was possible to reinforce concrete with timber. Roughly speaking, steel is about eight or nine times stronger than timber, but

ten to fifteen times as expensive. The efficiency of timber as a reinforcing material, depends on whether there is sufficient adhesion between the timber and the concrete, and whether the difficulties of the absorption of moisture by the timber from the wet concrete, and the splitting the latter, can be overcome.

The paper describes the experiments made by the author to ascertain (a) the amount of water absorbed by eighteen kinds of timber immersed in fresh water, along the grain and through the end grain respectively; (b) the relative absorption by the timber of fresh and sea water in the same period; (c) the relative amount of water absorbed by timber embedded in 6 to 1 concrete and neat cement blocks; (d) the effect of applying wood preservative, creosote, varnish, etc., to the timber before insertion in the concrete or cement blocks; (e) the effect on the adhesion between the timber and the concrete of soaking the rods before insertion. Examples are given to show that concrete effectively preserves timber embedded in it.

Particulars are given of the construction of twenty-five reinforced ligno-concrete beams, 8in. deep. Three ligno-concrete beams, 8in. deep by 4in. wide, were tested with a central load on a 4ft. span; the average ultimate load producing fracture about three tons. The results of these tests are compared with the tests on ferro-concrete beams recorded by Mr. F. Marburg in the Proceedings of the American Society for Testing Materials 1901, vol. iv. It appears that for the same ultimate strength of beam it is necessary to use 9 per cent. of sectional area of pitch pine tensile reinforcements as against 1 per cent. steel reinforcements. A comparison of the prices of steel and pitch-pine show a saving in favour of ligno-concrete.

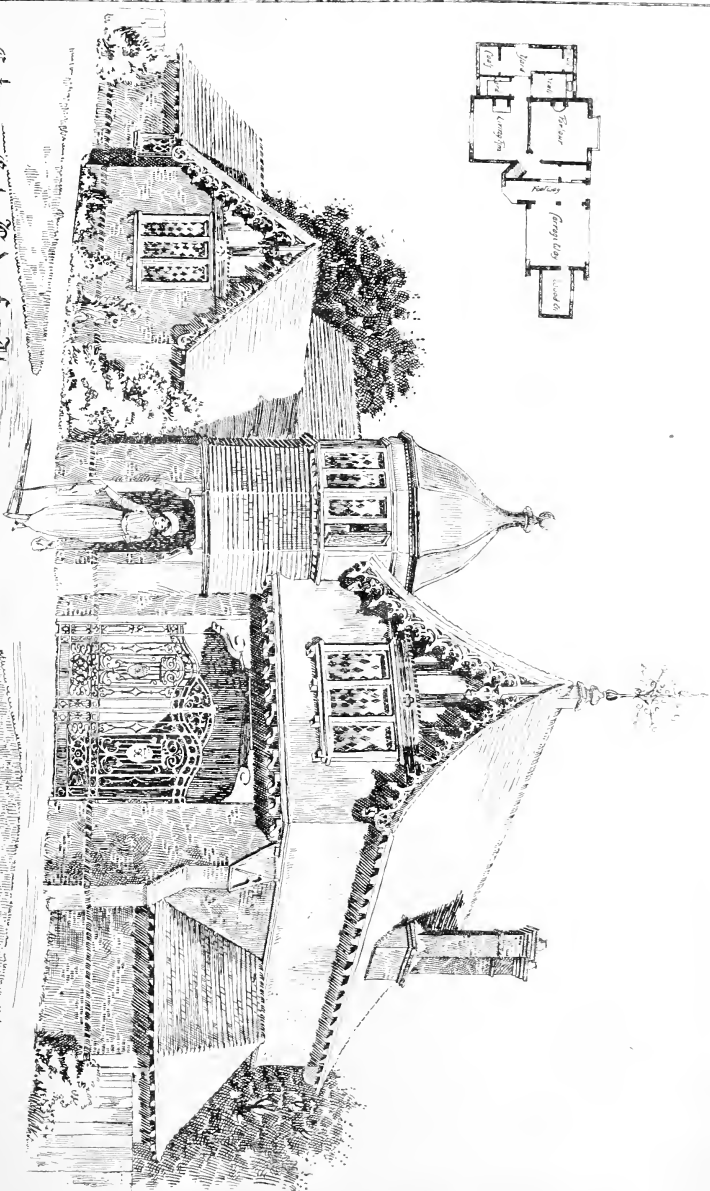
As the author points out, in cases where more than about 1 1/2 per cent. of steel reinforcement is required, ligno-concrete can not compete with ferro-concrete, because the required size of the timber bars would be too large for convenient use. There appears, however, to be a big field for it for use in constructing bungalows, buildings for small holdings, floors, piles, posts, fencing, canal and river works, etc. It has already been used for making fence posts and for building a short length of sea wall. The ligno-concrete fence posts cost about two shillings per cubic foot. They are about 20 per cent. cheaper than creosoted deal, and about 40 per cent. cheaper than English oak. In Canada, four bungalows have been built with ligno-concrete slabs, and the Pacific Coast Construction Company, of Victoria, British Columbia, now have contracts in hand for twenty buildings in which this material is to be used.

LORD CALTHORPE'S LODGE AT WOODLAND.

This lodge and gateway has been erected for the Right Honourable Lord Calthorpe, as a memorial to his late wife of Wightwick at Woodland Vale, near Ryde. The accommodation provides a living room, commanding the approach, parlour, scullery and roomy office, and three bedrooms on the first floor. The materials are best sand-faced red bricks for exterior brickwork; the roof-covering is of sand faced purple-brown tiles. The part over gateway is roughcast; the gates are of wrought iron, and the gateway is paved with wood blocks in order to deaden sound. The gables are half-timbered and have carved bargeboards and gable sills. The cost, including garden walls and fencing, was £1,000; the builder being Mr. E. James, Pinsted, Ryde, and the architect Mr. Stephen Salter, FRIBA., "Pondwell," near Seaview, I.W., and Oxford.

Sir Alexander Macdonald, of the Isles, last week, unveiled the memorial fountain which has been erected in that town by public subscription to the memory of the late Alexander Macdonald, Mayor of Edinburgh at the junction of High-street and St John-street, in the Old Town, where the late Alexander resided. It is of white Italian marble, and is surmounted with a life-size bust of the deceased gentleman.

Entrance Gate Lodge for the
Right Hon^{ble} Lord Clithorpe



Sketch by J. H. P. for the Right Hon^{ble} Lord Clithorpe



ST. MARTIN'S PRIORY, DOVER.

The March issue of the *Home Counties Magazine* (G. Bell and Sons, Ltd., ls. 6d.) is a particularly interesting one. There are articles on Long Ditton, the Hippodrome, articles on Long Ditton, the Hippodrome, articles on Long Ditton, the Hippodrome, located at Notting Hill; the First Home of the old East India Company; the Origin of Markets and Fairs; the Haymarket, London; Some Early Churches of South Essex; and St. Martin's Priory, Dover.

The last is by Mr. J. Tavenor Perry, in continuation of a former paper in Vol. XIII., which sketch of the well-known Gatehouse we are permitted to reproduce, with extracts from his description of the Priory.

The church has essentially in all its chief characteristics the Austin Canon and not the Benedictine arrangement; and the nave is wide and spacious, suitable for the large congregations who were expected to listen to the Augustinians. Its dimensions, from the west front to the crossing of the transepts, and from the south to the north walls inclusive of the aisles, were about 145ft. by 65ft., or nearly 9,500sq.ft. for the nave alone, and it was formed into nine bays. The piers of the nave arcades were square, with nookshafts of Bethesden marble, some of which have been found amongst the ruins; and as these piers were comparatively slight, being only five feet square, and as there were no buttresses capable of withstanding any thrust, the roofs must have been of wood. The west front was not prepared for towers, as it would have been with a Benedictine church, and the piers at the crossing, which had a clear internal space of 30ft., were not sufficiently strong to carry any lofty tower at that point. The transepts were aisleless, and stretched 100ft. from north to south, and each had on its eastern side two semicircular apsidal chapels, 12ft. wide and deep. The square-ended choir and sacristy had together a length from the crossing of 95ft., and the same width as the nave; the nave aisles were continued for three bays along the sides of the choir, with circular piers to the arcade, and apsidal terminations. Traces of a single doorway in three orders were found at the west end, and another in the third bay of the south aisle which, no doubt, was the entrance used by the townspeople, and its door may have borne the usual sanctuary ring to mark the church as the successor to or the sharer in the benefits and protection of St. Martin's cloak.

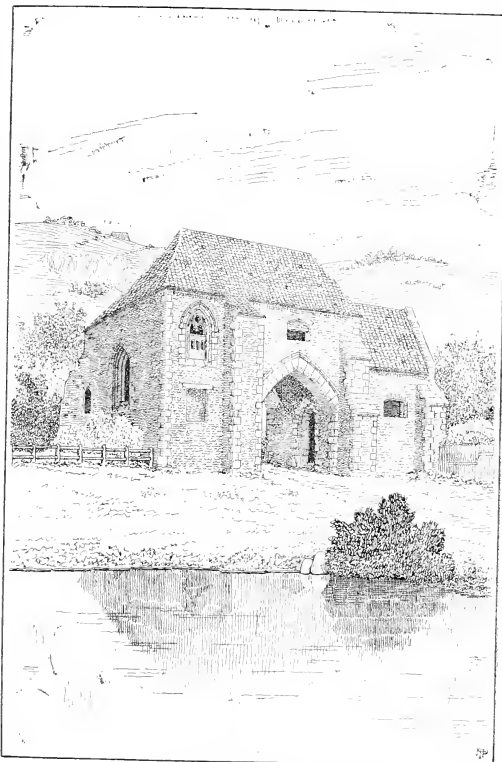
Of the aspect of the church in its primitive beauty, internal or external, it is difficult now to form a conception, since, although enough remained in the last century to make it possible to take an accurate plan, scarcely one stone remained above another; and now, all that was left then has either been destroyed or buried under the modern houses. For its size it might have been comparable with Rochester, Southwell, or Tewkesbury, and, as far as we can judge from existing remains, must have equalled them in architectural decoration.

The conventual buildings at Dover were placed on the north side, which, though not the customary position, was by no means rare, and was, by peculiarities of the site, sometimes made necessary. In this particular case the church, having been designed with special reference to popular preaching, it was set on the townward side of the site, and the buildings for the canons' use on the further side; in this the example of Canterbury was followed, where the church was placed nearest to the city and the conventual buildings between it and the city wall. Thus we get the chapter-house at the end of the north transept, without any intervening slype, and of the same form as, though rather smaller than, the beautiful conventual refectory one, built by Galfrid Rufus at Durham, which the Dean, Lord Cornwallis, having found it chilly, ordered to be pulled down in 1793. Beyond the chapter house, and stretching still northward, was a range of buildings, measuring over all 30ft. in width by 145ft. in length. This is generally assumed to have been used by the monks as their dormitory, with perhaps an undercroft for various domestic offices; but it had no access to the church, such as was usually pro-

vided for the convenience of attending early services; unless the roof of the chapter house was made so low that a gallery to the transept passed over it.

To the north of the nave and to the west of the last-mentioned buildings was the cloister, the outlines of which are still apparent, and which measured about 110ft. square, including the walks. How far the building of the original cloister had been carried before the French attacks we do not know; but in the considerable ruins of the west walk, till recently remaining, were found fragments of 13th-century vaulting ribs, which may have formed portions of the groining on that side. Towards the end of the 15th century it had

this arcade irregularly pierced with simple round-arched windows, two being arranged together at the east end, those on the south side having their sills raised to a higher level, so as to clear the cloister roof. The original capitals showed Norman scallops; but a large number of those with their abaci were destroyed by the French, and others of later design were inserted in their places. Very little of the ancient roof remained, and it was found necessary at the recent restoration to put an entirely new roof to the building. Having regard to the fact that for more than two hundred years the refectory had been used as a barn, it is wonderful that on the east wall below the arching there still



THE GATEHOUSE, ST. MARTIN'S, DOVER.

DRAWN BY MR. J. TAVENOR-PERRY.

evidently become dilapidated, for in 1481 the will of a Robert Lucas was proved, by which the sum of 13s. 4d. was left for the making of a new cloister. Whether the whole or any part of this bequest was expended is unknown; no remains of work of so late a date have been found among the debris, but the gift seems to show that some rebuilding was necessary and contemplated.

On the north side of the cloister stands the refectory, the most interesting and the best preserved of the priory buildings, measuring 102ft. in length, 27ft. in width, with a height to the top of the walls and springing of the roof of 30ft. Round the upper part runs a graceful arcade of semicircular arches, carried on pilaster piers with nookshafts, and

remain considerable traces of a large painting of the Last Supper, stretching right across the full width of the bay. The figures are life size, and the nimbus or halo moulded and stamped into the plaster background. At some time subsequent to the first painting it has been considerably "freshened," and the position of St. John's head is clearly altered, and as the stopping of the old windows has now fallen out, the Apostles' faces are somewhat ludicrously apparent on the bearing of the heads. Though not so beautiful or so well preserved as the Virg's painting of the subject in the refectory, of the Grazie at Milan, it is equally interesting, and almost unique in England. Towards the east end of the south wall, at the end of the bay, was a

annexes, and many of the latter have been empty when the church was last visited. Dissolution was taken into account, and the date of suggestion was made, but the latter is only an appointed date. The church is a fine one.

The church is a fine one, and the monks' dormitory, which is a fine one, is a fine one. The church is a fine one, and the monks' dormitory, which is a fine one, is a fine one. The church is a fine one, and the monks' dormitory, which is a fine one, is a fine one.

The church is a fine one, and the monks' dormitory, which is a fine one, is a fine one. The church is a fine one, and the monks' dormitory, which is a fine one, is a fine one. The church is a fine one, and the monks' dormitory, which is a fine one, is a fine one.

In houses of Austin Canons the prior's lodging was generally placed at the south-west angle of the nave; but there are no indications at Dover of there ever having been any buildings in this position. When William de Longville and the other canons from Merton came hastily to seize the New Work for their order it was in a very unfinished condition, and they were most likely expelled before proper accommodation had been found for them. The position, moreover, having regard to that of the town, would have been very inconvenient, and the canons are that the Benedictines erected this important building nearer the main Canterbury road and the Maison Dieu, and that all traces of it have been lost.

Farther along, westward of the church and facing towards the Folkestone road, stands the Priory Gateway, which appears to have suffered more from the French devastations than any other part of the convent. At the time of the attack it could have been but barely completed, and a considerable part of it seems to have been thrown down; but it was reconstructed at a subsequent date by using up, as far as they would serve, the undamaged ruins, with the result that in its details it shows many anomalies. The gateway entrance was originally groined and filled with a portico, which was destroyed at the building. At the side of the gate was a small chamber reached by an external staircase and lighted from the gateway by a small window; this formed a chapel, with a niche at the entrance for the holy-water stoup, and to the east a piscina and a recess for the altar. The only access to the upper floor must have been from adjoining buildings now destroyed, and it contains some firebricks, with a turned shaft of a very late date, and has a turned staircase in one angle intended to give access to the roof.

Still further to the west, at the angle of the priory enclosure, stood a great stone built barn, which appears in the foreground of a plate representing the ruins in Groses' "Antiquities of England," from which it would seem to have been a fine example of the twelfth century work. To the north of the site, under the base of the hill and at some distance away from the church, are extensive remains of buildings the exact purposes of which are unknown; and among them, in a fairly perfect condition, is one which was most likely intended to be the guest house. It consists of a hall, 60 ft. long, with a narrow aisle on the north side, which together are about 35 ft. wide, with an arcade of six pointed arches on cylindrical shafts, having particularly graceful scalloped capitals of an unusual form, but to be found in the neighbouring church of St. Margaret at Cliffe. At the south end of the hall was a great fireplace, the chimney recess of which remains, and at the south-west angle was a turret. The windows are all of an early lancet form, but the doorways have been altered by the other openings which have been cut in modern times.

There were a large number of walls and ruins raised up with modern farm-buildings scattered about the site, the uses of which could not be determined, many belonging to extensive works carried out in the thirteenth century, when we know that, among others, a bakehouse and a brewhouse were erected.

The seal of the priory, as found in Hasted, shows St. Martin dividing his cloak with the beggar of Amiens, according to the old legend. The arms of the priory are given by Hasted as "a cross, between four leopards' faces, or a cross argent, which Mackenzie-Walton says were the paternal arms of the Prior Robert.

The report of the King's Visitors at the time of the suppression was to the effect that the house was in a decaying condition, had management and diminished revenues having brought it to the verge of bankruptcy. Apparently the prior had been forced to borrow of the inhabitants and had mortgaged the goods of the convent for security; and in one case at least, where he seems to have run a long bill with his butcher, one Thomas Mansell, he had to take the very cost off the back of the image of the Blessed St. Thomas, the coat of arms, with divers jewels, rings, and other jewels, and give it in pledge for the payment of the account. The house was voluntarily surrendered by the prior and brethren on November 16, 1535; the buildings and revenues were granted to the see of Canterbury. The altars were not removed until 1549. The stalls were given to St. Mary the Virgin, Dover, and must have been destroyed when that church was restored early in the last century. The materials of the church were given to the town of Dover for the repair of the town walls and gates; and so, piece by piece, one of the finest monastic churches in the country was utterly swept away.

THE SCOTTISH NATIONAL PORTRAIT GALLERY.

The Scottish National Portrait Gallery, Queen Street, Edinburgh, reopened last week after its closure for annual cleaning. A number of new portraits were seen on its walls for the first time. One of the most important is the full-length portrait of Sir Henry Campbell-Bannerman, M.P., who was premier from 1905 to 1908. Painted by Sir James Guthrie, P.R.S.A., on a commission from admirers of the right hon. gentleman, the portrait, which was exhibited in the R.S.A. exhibition in 1908, has now been presented to the gallery by the Scottish Liberal Association.

A full length of James, first Duke of Hamilton, after the painting by Vandyck in Hamilton Palace, has been hung. The portrait, which is a fine work of art, is a copy by a contemporary of the great painter.

Another new portrait is that of Sir James Stewart of Coltness, who was outlawed for his connection with the "Highland Clearances," born 1729, died 1870. Professor Syme, attired in black, with white necktie, is seated on a chair, book in hand. The portrait is by George Richmond, R.A. (the father of Sir William Richmond, R.A.) who in his day was accounted a fashionable London portrait painter.

Another portrait recently purchased, and now hung, is that of James Syme, the distinguished Edinburgh Professor of Surgery, born 1799, died 1870. Professor Syme, attired in black, with white necktie, is seated on a chair, book in hand. The portrait is by George Richmond, R.A. (the father of Sir William Richmond, R.A.) who in his day was accounted a fashionable London portrait painter.

A last portrait, which was acquired at the Purser sale last year, is that of Patrick Adamson, Archbishop of St. Andrew's in 1576, who acted as Ambassador for James VI. to Queen Elizabeth in 1583. The work is in the style of the Flemish painter, Antonio Moro.

Another portrait of an early Scottish prelate has also been hung. This is a small head of William Forbes, Professor at Marischal College, Aberdeen, who was appointed by Charles I. first Bishop of Edinburgh. A portrait of the same gentleman, by Jameson, is in Aberdeen.

The portrait (half-length) of James, 8th Earl of Lauderdale, by Thomas Phillips, R.A., a London portrait painter of the beginning of the nineteenth century, has also been placed. Born in 1759, the Earl, who died in 1839, was a well-known Parliamentarian of his day, and for a time was Lord High Keeper of the Great Seal of Scotland.

There is also a portrait of Richard Cooper, by Jeremiah Davison, a portrait painter who painted a number of Scottish notables, and whose works are not unfrequently attributed to Allan Ramsay. He had among his sitters Frederick, Prince of Wales, and Admiral Pym. Cooper was a well-known engraver in Edinburgh in the middle of the eighteenth century, and the master of the better-known professor of that art, Sir Robert Strange.

In connection with the recent arrangements made between the Trustees of the National Galleries and the Royal Scottish Academy, the latter body have now permanently handed over to be with the National Collection, a number of works of importance which have been on view in the National Portrait Gallery. Among these may be noted the superb portrait by Rubens of "Christopher North," as a young man standing beside his horse; the equally distinguished portrait of Lord Cockburn, by Sir John Watson Gordon; and the admirable portrait of Sir John Watson Gordon, by Graham Gilbert.

Several portraits handed over by the R.S.A. appear on the walls for the first time. Among these may be mentioned a portrait, cabinet size, of James Craig, the architect of the New Town of Edinburgh, painted by David Allan. Craig, in the garb of the day, is seated at a table with the plan of the New Town of Edinburgh before him. At his feet is a white curly poodle dog, and on the floor an engraving of the old County Hall. It was one of the pictures in the Laing Bequest.

From the R.S.A. collection is a well known picture of David Allan, the painter, in turban and loose bluish robe, at his easel. It is by Dominic Corvi, and had been presented to the Academy by Mrs. John Greig, of New York. By the late James Archer, R.S.A., is an oblong frame of portraits of Scottish artists who were in London. They include Tom Fearn, G. A. Lawson, the sculptor; Orchardson, Pettie, Tom Graham, and W. E. Lockhart.

There is from the R.S.A. (Laing Bequest) a portrait in pastel of Allan Ramsay by himself, full of character.

Among other novelties newly hung are a pencil drawing of the Princess Charlotte, of Wales, the only child of George IV., drawn from the life by G. Sanders (this from the R.S.A.); a drawing of the late Sir Arthur Mitchell, K.C.B., by J. H. Lorimer, R.S.A., which had been left to the Gallery by the late Mr. J. M. Gray; and a drawing of the late Mrs. D. O. Hill, in her youth, by Alexander Blunkley. Mr. Robert Herdman, excellent portrait of Thomas Carlyle, which has been on loan for some time in the Gallery, has now been acquired by the Trustees. A small head of John Wilson, the Scottish vocalist, by Sir Daniel MacNee, P.R.S.A., has been presented by Mr. A. W. Inglis.

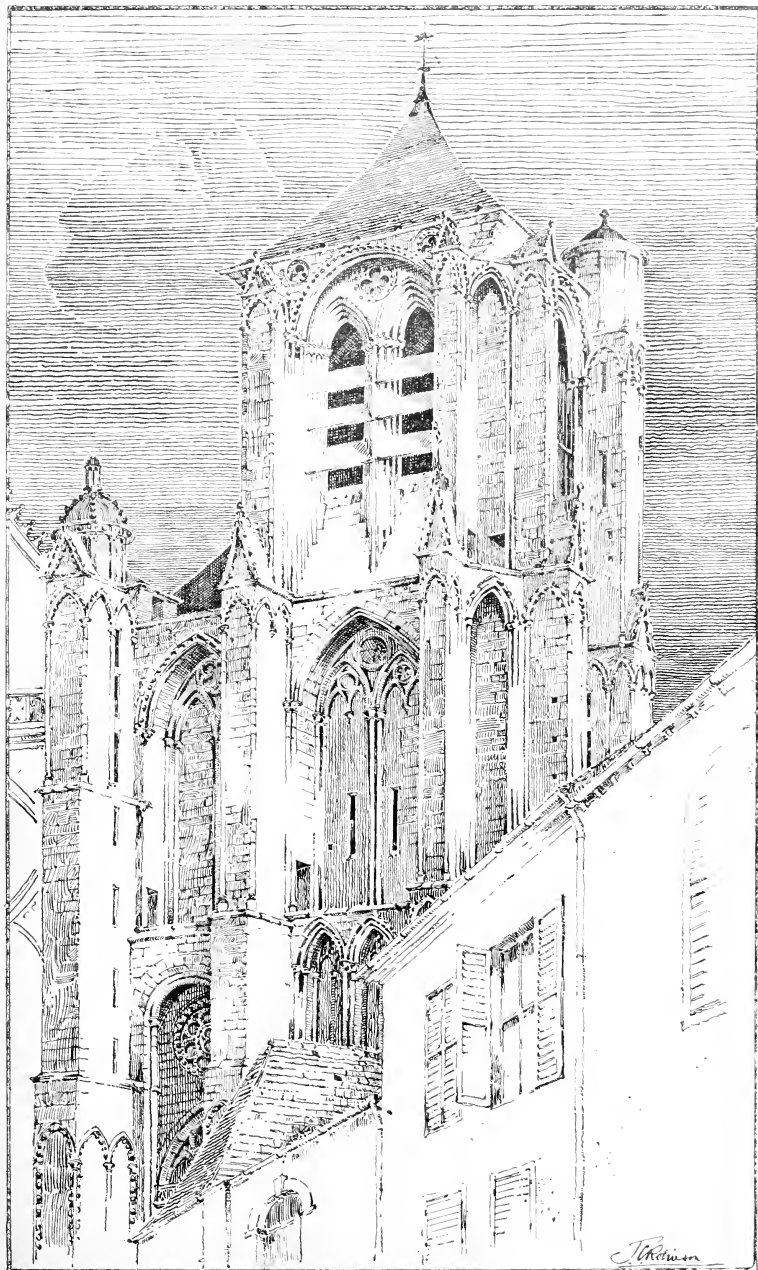
S. W. TOWER, BOURGES CATHEDRAL.

The magnificent external grouping of Bourges Cathedral, with its five richly-decorated towers, two western towers, and two flying buttresses over double aisles and clerestory is sufficiently well known to render description unnecessary.

Internally, the effect of a nave of great height, unbroken by transepts, with ridge running uninterruptedly from west end to apse, is very impressive, and forms one of the finest examples of 13th-century decorative work.

The north and south doorways are Romanesque in style, with protecting porches having detail displaying Portuguese influence of late 11th century.

The sketch shows the smaller of the two western towers, with its interesting Renaissance cypolus surmounting the stain turrets, and deeply recessed windows and tracery. J. C. ROBINSON.



S.W. TOWER. BOURGES CATHEDRAL.



THE SOCIETY OF ORDAINED SURVEYORS.

The fourteenth annual meeting of this society was held in the Royal Hotel, George-street, Edinburgh, yesterday evening. During the year two new members have been admitted to the society and one member has resigned.

The charter and the rules and regulations of the proposed Society of Chartered Surveyors of Scotland have been presented to the Privy Council. Objections to the charter were lodged by the Surveyors' Institution, and were considered by the society at a special general meeting. Answers were afterwards drawn up by the sub-committee on the charter and lodged with the Privy Council.

The attention of the society was drawn by the Edinburgh, Leith, and District Building Trades' Association to the system adopted in the preparation of the schedules of quantities issued by the War Office for Redford Barracks, which differed materially from any system to which Scottish contractors are accustomed. The society made representations to the War Office, and has now received an undertaking from the Army Council that "in future, for building contracts in Scotland these differences will be adjusted to agree with the procedure generally applicable to Scottish methods."

The Glasgow Institute of Measurement has courteously submitted the rules for the measurement of digger work, which the institute proposes to issue, for the consideration of this society.

The treasurer's balance sheet for the year shows that the funds of the society at the close of the financial year amounted to £422 19s. 8d. The Board met on four occasions during the past session.

There were, as usual, two diets of examination held during the year, in April and October. Six candidates in all were examined, of whom four were for re-examination. Of the six examined, one passed in one subject, and is through the examination; one passed in two subjects, and is through the examination; one passed in two subjects and failed in one subject; one passed in one subject and failed in two subjects; two failed in one subject. On production of leaving certificates two candidates were held exempt from the preliminary examination. No candidates presented themselves for the intermediate examination. For the final examination there were two diets held during the year, in April and October. Six candidates came forward, and all were successful in passing. During the year two indentures were registered.

THE ORIGIN OF STUCCO.

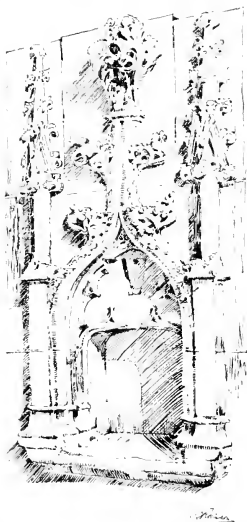
We do not know how early in human history lime was discovered. It was very long ago, perhaps 6,000 years. No doubt some householder built fireplaces of limestone and saw them crackle before his eyes. The stone crumbled and turned into a white powder, afterwards becoming hard when water was applied. The addition of sand naturally followed to save expense, and the addition of sand was found to make a firmer and harder stone, and the mixture of lime and sand set much faster than the lime alone, when mixed with water into a mortar. Lime mortar was soon introduced into the interior of houses to form a base on which to decorate the walls. On the outside a small admixture of clay was found to enable it to better resist the action of the elements. Some men later found that when gypsum was calcined the result was what we now know as "plaster of Paris," which was used to shorten the time of setting and make a harder plaster.

The addition of about fifty per cent. of ground brick-dust or clay to lime paste made a hydraulic cement, one that would set under water. This discovery, made very early in the history of construction work, enabled men to erect important maritime works and cover houses with stucco which has lasted for centuries. The Romans mixed ashes from volcanoes in the vicinity of the village of Puzzuoli with lime and pro-

duced the famous "Roman cement," the secret of which was lost for nearly ten centuries, and the search for which led to the discovery of Portland cement. The use made of Roman cement in making stucco was well known, but as the centuries went on without Roman cement, the masons found that anything better than lime had ever been used for mortar, either for interior or exterior work, and houses plastered on the outside were erected for poor people in all countries. The plaster was not durable, and only in Italy, where many trade secrets were preserved among masons, did the stucco house persist. A century or so ago the use of plastered exteriors came in again for houses of a good class, and plasterers and masons from Italy were employed. With the discovery of Portland cement the stucco house immediately became popular. Ernest McCollough, in an Address before the North-Western Cement Products Association.

CREDENCE, POITIERS.

Among the many interesting churches of Poitiers is the Romanesque church of Notre-Dame-la-Grande, with its barrel-vaulted roof. The west front—flanked by circular turrets—is profusely enriched with Byzantine



ornament. The turrets and central tower have curious conical roofs of stone, common in Poitiers. The interior has been spoilt by garish colour-decoration, completely covering piers, roof, etc.

The credence illustrated is in one of the chapels, and is a charming specimen of 14th-century carving. It measures 2ft. 3in. by 4ft. 6in. (extreme height).

J. C. ROBINSON.

MODERN PRACTICE IN REINFORCED CONCRETE.

By C. A. P. TURNER, Minneapolis.

It may not be amiss to call attention to the fact that this type of construction is no longer new and novel, but its advantages from the standpoint of utility and economy have been so thoroughly demonstrated that only those who are unwilling to keep abreast of the times are lacking in general familiarity with it. I propose merely to call attention to the

well-known advantages of reinforced concrete construction, and then to take up those questions of design and execution which should be clearly borne in mind in order that no difficulty or accident may result in the execution of the work. From the economical standpoint I may say that for heavy warehouse construction reinforced concrete is cheaper than the old-style timber mill frame, since the price of lumber has steadily advanced and its quality deteriorated as the forests are cut away. For lighter buildings, having a capacity of 100lb. to 150lb. per foot, reinforced concrete costs more than timber construction; but its advantages from the fireproof standpoint and its permanence and the reduced cost of insurance should cause the careful investor to think twice before putting up the old-fashioned fire-trap construction.

As compared with structural steel, reinforced concrete is invariably much cheaper for the skeleton of a building, and a saving in cost of from 50 to 75 per cent. of the structural steel frame may be readily effected by the adoption of the more modern type of building.

We have, in many cases, building codes distinctly adverse and unfavourable to reinforced concrete construction. These codes have been adopted, not by a careful study of test data, but rather with the idea of making it difficult for the pioneer in reinforced concrete construction to work at all. Such codes, however, are being amended from time to time for the owner who ultimately pays the bill becomes cognizant of the increase in cost due to ordinances that are unfair to this type of work, and he is taking some interest in seeing that such rules and regulations are revised and brought up to date.

REINFORCING MATERIAL.

In considering the execution of work in this line, a few remarks regarding the materials which enter into it may not be amiss:

For reinforcement, many engaged in the manufacture of bars seem to consider that anything at all is good enough to be buried in concrete work. Thus we have bars of bushel steel, a mixture of miscellaneous steel and iron scrap, more or less imperfectly welded together and placed on the market as mild steel. In ultimate strength this material generally runs about 48,000lb. to 50,000lb. It bends easily, is softer than mild steel, is lacking in strength, and its quality can be readily ascertained by nicking a bar and breaking it short with a sledge, when it will show a dull instead of a bright and crystalline fracture.

Then we have the old rail stock bars rolled from old rails. Some of this material, when properly treated, is fairly tough, and stands a good test. Other samples of it will be found so brittle as to snap short at times in handling. It can be purchased as a rule at 240l. to 340l. a ton under the market price for billet steel; but the conservative engineer and architect is inclined to reject it entirely, on the ground of lack of reliability. Material meeting the manufacturers' standard requirements for medium steel, Bessemer or open hearth, is to be preferred.

We have received from some mills bars running from 75,000lb. to 85,000lb. ultimate strength, with an elastic limit of 50,000lb. and an elongation of 27 to 30 per cent. Such material presents the desirable characteristics of unusual toughness and high ultimate strength and elastic limit, and is, as the writer looks at it, an ideal stock.

Manufacturers of all brands of Portland cement are using their best efforts to turn out a product which is as uniform as possible. As a result the statement is justified that among those brands which have been on the market for a period of five years there is a greater degree of uniformity in Portland cement than the merchant steel on the market to-day.

READY TESTING METHODS.

Where the contractor has no equipment at hand for making tests of the strength of briquettes, he can readily determine whether the cement is finely ground or not by feeling of it. He can readily make a boiling test and determine whether the cement is sound, without expensive equipment. This ac-

elaborate tests and quality made, and the result of these tests is not satisfactory, practically remove all doubt as to the character of the material.

The strength of concrete depends:

1. On the grade of sand and the proportions of the cement to the sand in the mortar.

2. Upon the fineness and character of the coarse aggregate.

3. On the manipulation and the conditions under which the concrete is cured or hardened.

4. On the age of the specimen.

A mortar made with a very fine sand is only about half as strong as that made with coarse and medium grains, and for this reason the specification regarding the character of the sand should be given careful attention. Dust, silt, and loam occurring in appreciable proportions in the sand should be cause for its rejection.

The character of the sand may be readily investigated by taking a two-part preserve jar, filling it about full of water, and then pouring in about a quart of the sand, putting on the cap and shaking well, when the coarse grains will go to the bottom, the finer to the top, and the silt and clay will settle on the surface. More than 3 per cent of dust or clay should be cause for rejection.

Where the concrete is exposed to the weather, the aggregate should be of such material that it will weather well and will not be affected by frost. A soft, porous stone may readily cause a disintegration of the concrete work. Granite, trap rock, or other hard natural stone will, of course, give a concrete far exceeding the strength of aggregate in which shale or softer material is used as an aggregate.

The strength of Portland cement concrete in compression is equal to that of our best building stone, with the advantage that it can be placed in a monolithic mass. Its tensile strength, like that of stone, is greatly inferior to its strength in compression. Concrete yields but little, the stretch being confined to a weak section. When, however, steel is embedded in the concrete and properly disseminated through it, the deformation under tensile is many times greater before fracture occurs.

The conditions leading to the combination of concrete and steel for building work may then be stated as follows:

Concrete is an excellent and trustworthy material for compression and steel for tension. Hence the steel should be distributed in such a manner as to carry the whole chord strains and tensile web stresses. To do this economically, we can reason by analogy from a truss or beam. The further from the neutral axis the more effective the unit section. Hence the reinforcement should be at the bottom of a simple beam, or as close to it as satisfactory protection against heat or fire will admit. Now, the beams in a building are of constant section, and since the concrete is much stiffer and stronger than a beam of the same section discontinuous over supports, the ideal concrete steel beam should be continuous and the top flange reinforced over supports. Where this type of reinforcement is used the bars may be bent downward toward the point of contraflexure, and the main tensile members then can be utilised to resist shear directly.

DEFECTS OCCURRING IN EARLY STAGES.

Many plans of design prove satisfactory when the contractor has had ample time for thoroughness and labour; but during the early stages of hardening and while the time when the average foreman would remove the supports, the concrete, not having developed its full degree of strength and hardness, proves itself weak in resisting shear. Accordingly the conservative engineer and designer should take the precaution of reinforcing the mass in such a manner that at this critical period of construction there will be little, any, and no strain for failure to result. Ample tying of the reinforcing bars over the supports and thoroughly tying the mass together as a means by which the designer would have prevented the majority of disastrous failures that have occurred in the past in putting up reinforced concrete building work.

In the majority of cases where failures have occurred, had the forms been left in for a much longer period no failure would have resulted, and the buildings might have proved commercially successful, useful, and fairly satisfactory. On the other hand, while in this sense responsibility for failure must be shouldered by the workmen putting up the construction, the designer who failed to take these essential precautions cannot escape his share of the responsibility for the results.

The majority of failures have occurred through insufficient lap of the reinforcements over the supports and tying the work together, these failures being floor failures, and in the majority of cases shear failures of partly cured concrete. Such examples as this are those of the Long Beach Hotel, the recent failure of the First O Little building in Indianapolis, the failure of the Fairbanks building in Canada.

Some column failures have occurred in reinforced concrete buildings, but they are few in number. As an example of this character, the Heule building in Cleveland, Ohio, may be cited. Here there was an unusually large amount of vertical steel in the column, but the housing was almost, if not quite, lacking. A few ties, consisting of hay wire, wound around the reinforcement at distant intervals, was the only provision made. The collapse of this building was practically complete, although undoubtedly the work would have stood up had the concrete been given ample time to cure and harden.

FLAT SLAB AND COLUMN CONSTRUCTION.

During the past four or five years the type of flat slab and column construction originated by myself has been widely adopted. In this type of building the principle of continuity recommended for beams has been carried out, and bending is resisted not only by radial forces, but by circumferential stresses around and in the vicinity of the column in the upper part of the slab and in a similar manner in the bottom of the slab, between supports. As we consider the flat plate about the column in bending downward the distortion of a circular section, having a centre at the column, is evidently 2, or 6.27 times the distortion of a radial section, and the work done by the circular or circumferential reinforcement may be better understood by this comparison. It is the resistance of the bending stresses in this manner which enables the use in this type of construction of comparatively shallow thicknesses of floors, and enables it to develop the enormous strength exhibited in many tests that have been made with it.

The advantages of the type may be stated as follows: Some saving of materials where the loads are heavy. The elimination of beam boxes and a saving in centering and better light obtained by the elimination of beams.

I have called attention to the failures due to the early removal of the forms and to conservative designs. A few remarks regarding the conduct of the work, especially at that period of the year when the majority of accidents occur, will be in order—namely, during the chilly weather of the fall and cold weather of the winter.

The hardening of concrete is a chemical action retarded by heat and retarded by cold. In temperatures below 45deg. F. it frequently happens that the cement lies dormant and the hardening process progresses with extreme slowness, if at all. The foreman, or superintendent, on the work who considers that all that is necessary is to leave the forms in place and support the mud so many days, and then to cut and support columns, is liable to run into serious difficulties in putting this notion into practice. As soon as the temperature is below 45deg. F. the water used in the mixing of the concrete should be heated to about 90deg. or 100deg., and the concrete put in place warm. Then the setting will progress almost as rapidly as in the summer time.

WINTER WORK AT FORT WILLIAM, ONT.

In a building, the reinforced concrete of which was designed by the writer and erected by a Minneapolis contractor in Fort William,

Ont., the roof slab was cast on the 7th of last December, at a temperature 15deg. below zero. The concrete was kept hot by a number of salamanders, and was not permitted to freeze. On the 15th of December, while the workmen were placing cork insulation on the lower floor, a fire started by workmen getting a little of pitch too near one of the salamanders, and the ceiling under the second floor and roof was burned out. The work did not collapse, but was damaged to only a slight degree. Results of this kind are in strong contrast to the work in the First O Little building in Indianapolis, in which a complete collapse occurred after the concrete had been cast between four and six weeks.

None of the troubles in concrete work occur, not because there has been a collapse, but because the work gets out of shape. Slabs and beams deflect and get out of line, although collapse does not occur. It is a rather difficult matter to determine just when concrete, especially when it is put in during the chilly season, has fully cured. Driving a nail into the concrete and seeing whether it will pull out is not merely double over, digging out a piece and placing it over the heat of a stove, and seeing whether it softens up under the heat, or whether it retains its hardness and rigidity, are good and safe methods to determine whether the work will stand up after the removal of the forms; but these methods only are not sufficient to determine when the concrete will preserve the form intended without some inelastic deflection after the forms have been taken out. To eliminate trouble from this cause we now require a small amount of sub-centering to be left in each panel two or three weeks after the removal of the forms proper. This is an excellent precaution in carrying up the building rapidly, and is necessary for economy in the lumber over and over, and by removing the bulk of it and leaving a few props under the panel this inelastic deflection is prevented, and the form lumber utilised to the best advantage.

In conclusion, it may be stated that in the line of concrete construction, honesty in executing work and in the use of ample cement is the cheapest policy, since a rich concrete hardens much more rapidly than a lean concrete, and the amount which a contractor could save by skimming on the cement used is lost many times over in the additional time that he will be forced to keep the forms in place; hence the experienced contractor is more inclined to use more than the amount of cement specified than less, as he believes in good reason that he can actually save money by using sufficient cement so that the concrete hardens quickly, and he can remove the forms at the earliest possible moment.—*Contract Record.*

HINTS TO YOUNG VALUERS.*

The three previous editions of this excellent handbook have made it too indispensable to fail to mention to need any word of commendation of ours as regards its scope and purpose. Recent legislation, however, has rendered the present edition absolutely necessary. The provisions of the Finance Acts of 1909-10 and 1910, the Licensing Consolidation Act, 1910, the Law of Distress Amendment Act, 1908, the Abolition of Tithes Act, 1908, and the Agricultural Holdings Act, 1908, are therefore included, and the effect of recent decisions on new points in relation to the laws of rating and compensation is also fully explained.

Not merely to valuers will the book be useful, or to those who are preparing to become such. To landowners, or those charged with properties, and to investors and speculators it is really indispensable. Land was, perhaps, never a "gamble" in England; but really recent legislation has made it more necessary than ever for all concerned with it to carefully consider new contingencies that have arisen, which, if ignored, will entail disaster, and no better guide to the escape therefrom exists than this textbook.

* Hints to Young Valuers: A Practical Treatise on the Valuation of Property. By ANTHONY RICHARD CHADWICK, F.R.S., With Local Examples by J. V. MAUGHAN, M.A. Fourth Edition. London: Land Agents' Record, Ltd., 148, Strand, W.C. 41 5s.

CURRENTE CALAMO.

Much more interest was manifested in the House of Commons on Tuesday in the shilling dinner and the champagne, on which our four-hundred-pounders regale themselves, than in the sub-sequent debate on the Budget. Was it, as Luther, to include "two sweets in addition to joints—sometimes three helpings from the joint—vegetables, cheese, butter and bread"? And the champagne? Is that still to be supplied at "five shillings a bottle below the price outside"? Having worn a promise of a committee to consider these vital (vittle?) questions, nobody troubled much what Mr. Lloyd George is going to do with his surplus of six and a half millions, half of which has been wrung from us by over-taxation.

Let lucky Linds lick their lips,
Pile taxes up by billions;

Their shilling gorge, thanks to Lloyd George,
Is safe with his six millions!

Let us, at any rate, hope that honest Will Thorne's anxiety about the price of champagne will be placated by the distribution of a few dozens at the next meeting of the unemployed on Tower Hill, just to drink the health of the canny Chancellor, whose motto is, "Stick to a surplus when you get it!"

The paper which Mr. C. McArthur Butler, the Secretary to the Society, is to read before the Society of Architects next Thursday evening deserves the fullest attendance possible, not merely of members of the Society, but of all architects who regret that the architectural profession as a whole is, at present, without any publicly recognised schedule of the principles to be observed in practice, with no publicly recognised competition regulations, scale of charges, or penal code. All regulations which are at present recognised, or partially recognised—except the one relating to competitions—being more in the nature of expressions of opinion, and relying on custom for their enforcement, at any rate, so far as they relate to or bind unattached architects.

Every architect, in fact, is a law to himself, except so far as his voluntary obligations to any professional society he joins are concerned, and if these are broken and he is expelled the effect on public opinion is nil. Except for non-payment of their subscriptions few members of such societies are ever removed. The unattached architect is, of course, under no control whatever, and he may do whatsoever pleases him. Is it desirable that this should continue? Is it in the least likely that Parliament will ever give Registration without some guarantee of uniformity of practice, and the recognition by architects of a professional standard of uniform responsibility to the general public?

Mr. Montague Butler's suggestion is intended to meet present needs. We are not going to anticipate its scope and purpose here further than to say that we absolutely endorse his preliminary assumption that architects outside architectural societies—we should say ourselves, architects at present inside societies as well—are not in the least likely, and could not be compelled, to adhere to any general schedule or code devised or administered by any other controlling body than one representing the whole of the profession. Neither the Institute nor the Society can expect to become that controlling

body, as things are. Can any other such controlling body be devised? Mr. Montague Butler sets himself to answer this question, and we hope his suggestion will be exhaustively discussed next Thursday. He has, at any rate, brought an amount of research to bear on his subject as entitles him to the fullest hearing.

The *Sanitary Record* instances as a proof of a necessity for a certain course which it recommends an incident which, certainly, if the local newspaper report quoted is correct, is not creditable to the Chichester City Council. According to this report, at a recent meeting "Councillor Butler drew attention to a paragraph in the report of the sanitary committee which related to certain property of which he is the owner, in which the surveyor was instructed to write the owner pointing out what repairs were required. Councillor Butler, pointing to the surveyor, spoke of that official in language which was quickly resented by the mayor, who said he could not allow it. 'He is not a member of the council, he is my servant,' said Councillor Butler, etc. Councillor Butler proceeded to speak in calmer tones for a time; but presently he returned to the action of the surveyor, and, gestulating wildly, shouted at the top of his voice, 'I'll see him to—before I do anything more.' The efforts of the mayor to bring the councillor to order were met by Councillor Butler retorting, 'And you are as bad as the surveyor! I don't care for you—I don't care for you!'

Our contemporary is quite reasonably shocked, and is impelled to ask whether the Local Government Board should not, in the interests of local government, press for a short Act making it unlawful for builders and building owners—just as it is by the Local Government Act, 1894, made unlawful for a person interested in a contract—to be a member of a district council. A builder or building owner, the *Sanitary Record* declares, most rarely seeks representation on a public body except for his personal interests—that is, to insure that his property secures protection against the interference of the council's officials. Ratepayers, in the opinion of our contemporary, require protecting against the machinations of such interested persons with equal, or probably more, cause than against contractors, for insubstantial property which builders seek to protect by becoming councillors is more detrimental to the ratepayer than the advantages which a contractor can secure.

Now, that is just the sort of screeching protest that does more harm than good. We ourselves worked for six years on St. Pancras, and have a most pleasant recollection of the disinterestedness and zeal with which one well known builder, then a colleague of ours on the Council, laboured for sanitary reform. Really, property owners, even when builders into the bargain, are not all rascals or bullies. A decent builder has in many ways more interest than his brother ratepayers in sanitation, and it must be a cowardly sort of Council that permits itself to be cowed by any member who is a mere self-seeker. Just in the same fashion we have seen it urged by some fanatics that publicans and clergymen have no right on municipal bodies, because they are opposed to certain causes which some doubtless earnest people have at heart. Intolerance of any phase is never very par-

ticular about its victims. The worst of a history of this sort precludes many good causes. Let us all, by all means, sit down heavily on offenders of the sort indicated in the report whenever they transgress; but remember, that if we rush off to tar the wild flock as well as the erring sheep, we simply make ourselves ridiculous.

The efforts attributed to Lord Haldane to raise a million sterling to provide a new home for the London University, on the site behind the British Museum, are evidently not regarded with favour by some friends of the University. The authorities have had no opportunity of expressing an opinion on the scheme, and they feel, naturally, that if a large sum is raised with one particular site in view, they may be committed to a project of which they do not approve, or prejudiced in their efforts on behalf of a more suitable plan. It is also felt that the price of the ground, taking its building value into account, is unnecessarily dear, that the locality is not more accessible than the present building in South Kensington, and that splitting the building into four blocks will be a mistake. Some common sense doubtless is needed, and was strongly recommended by the Commission which recently investigated the University affairs; but the difficulty of obtaining a large enough site has so far been insuperable. If Bloomsbury is finally selected, we say again that Mr. David Niven's scheme, which we illustrated in our issue of the 22nd ult., is infinitely preferable to the suggested location north of the British Museum. The establishment committee of the Senate of the University of London have, meanwhile, instructed the Principal and officers to prepare a report comparing the accommodation available on the site of the present central offices with that which would be obtainable on the various alternative sites which have been suggested.

The Royal School of Art Needlework, in their printed advertising matter, obtainable by any member of the public, make the following offer: "Cards of introduction given to a City house, where all modern furniture, carpets, rugs, bedsteads, blankets, linens, etc., can be procured at wholesale prices for cash." The *Journal of Decorative Art* remarks:—"Not only do we regard this offer as unfair to retail house-furnishers, but as out of keeping with the traditions of the school and the Royal patronage which it enjoys." A retailer has sent our contemporary an actual card of introduction to the wholesale house in the City. It asks, therefore, are members of the public charged actual wholesale prices, without any added percentage of any kind? If the answer is in the affirmative, it contends, such a transaction is grossly unfair to the retail trader. If a percentage of any description is added, the public is being induced to purchase by methods which are open to serious question. We think our contemporary's question should be answered. Things done sometimes with the best possible intentions are liable to misconstruction.

A new hall for the Order of Foresters is being added to their house in Rutland square, Dublin, from plans of Mr. W. A. Scott, A.R.C.H.A., 45, Mountjoy-square. The cost will be about £1,900. Messrs. Robert Carr, Ltd., contractors, University-street, Belfast, have secured the contract for the new Co-operative Lecture Hall, Belfast. The architect is Mr. Samuel Stevenson, 38, Royal Avenue, Belfast.

UNIVERSITY COLLEGE, LONDON.

Dr. J. J. Barnes has been appointed assistant-visitor to the "Advanced Academics" Department for the Session 1911-12.

Mr. Harold L. Harris has been appointed teacher of Sculpture for the Session 1911-12.

The following are the certificates in Architecture: H. M. Gimson, G. M. Mayhew, E. P. P. Mounsey, J. Omer, Mary Selous.

In order to facilitate the closing of Little Gower place and to improve the site for the new chemical laboratories, No. 134, Gower street, and the stables at the rear thereof, have been purchased. The order for the closing of Little Gower place has just been granted. Preparations are now being made for the clearing of the site, so that building may be proceeded with at an early date. Professor F. M. Simpson has been appointed architect by the Senate.

It is hoped that the remaining £10,000 will be raised without delay, in order that the whole scheme may be carried forward as quickly as possible.

The need for better accommodation for the School of Architecture is felt more prominently before the college authorities for many years. In view of this need, and also of the limited accommodation for architecture at King's College, the Senate appointed a committee to consider the organisation of architectural teaching. After receiving the report of the committee, the Senate decided, if and when funds were forthcoming for the provision of an adequate building to combine the Schools of Architecture of University and King's Colleges in a building to be erected at the northwest end of the college site.

The rapid growth of the Slade School has rendered it impossible to provide adequate space in the college buildings for sculpture studios. Temporary studios for this purpose have been rented in the neighbourhood of the college.

The Senate received at their December meeting a communication from the Chancellor of the University the Right Hon. the Earl of Rossmore, conveying an anonymous offer to erect the buildings for the combined School of Architecture, together with the following: so far as a sum of £20,000 will suffice, (i.e., studios for the teaching of sculpture, and the rearrangement of the School of Fine Art, and the Department of Applied Statistics, including the Laboratory of Eugenics). The Senate, after receiving a report from the college committee, have accepted the offer, which will provide for the needs, in the way of buildings, of Architecture and of Sculpture completely, but the committee are not yet in a position to state how far the gift will avail to meet the needs of the Department of Applied Statistics, including the Galton Laboratory of Eugenics.

The redecoration of the south cloisters and the rearrangement of the students' cloakrooms has been long delayed, owing to lack of funds. This hindrance has been removed by a gift from Mr. and Mrs. Walter Baily of £1,000. What they propose is the rearrangement and decoration of the south cloisters and cloakrooms, and that the floor of the cloisters should be more decorated than Professor Simpson has, from motives of economy, suggested.

Mr. T. Sinclair, of Birk Road, Halifax, has been appointed surveyor to the Donkey and Underwood Works Urban District Council.

The foundations of a new carbolic church at Wilby, near W. York, were laid on Monday week. Mr. R. C. Bicknell, of Leeds, is the architect, acting locally in behalf of Mr. J. H. Eastwood, A.R.B.A., of London, and the contractors Messrs. Searl, Brodribb.

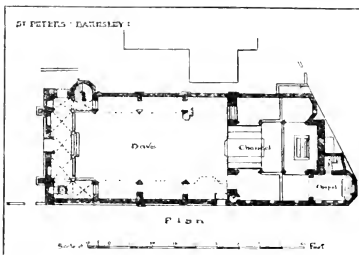
The portfolio, in two sets of ten, which the Town Government has ordered for Commemorative Water Colours, by W. G. Smith, of the "Lion Gallery," Finsbury, is now completed, and it will be shown together with a selection of drawings and watercolours by this artist at the Leicester Art and Watercolour Society on Monday, Saturday, 13th inst. Exhibitions of colour pictures and watercolours by Harold and Laura Knibb, A.B.W.S., and watercolours by "Conrad Eck," by Henry Henshall, R.W.S., will be held at the same time in these galleries.

Our Illustrations.

ST. PETER'S CHURCH, PARNESLEY.

The four photographs and plan given here will illustrate this church, which has just been consecrated, the building having been erected from the designs of Mr. Temple Moore, F.R.I.P.A., F.S.A. The site occupies a very long and unusual piece of land with a considerable fall to the east. The choir is of three bays, and the Lady chapel is formed out of the southern aisle, and extending eastward and filling up the angle made by the junction of the two roads. There

adornment being reserved to the pinnacles ranging along the parapet, as at Madley. The capitals to the piers are very beautifully carved with roses and larger big-leaved foliations. The Lady chapel in the eastern aisle of the north transept, with its semi-octagonal projection, is exquisitely gromed, and has a reliable, the windows being at the sides. This aisle is the only one which has the original vaulting completed, though springers were built in for the whole to be gromed. The vaulting to the west aisle is modern, rising upon the original springers. The registry over the great south porch was used for the parish books, though it originally is said to have been built for a



is a lofty clerestory to the choir, the east window of five lights is of large scale, rich in tracery. The chapel has a gromed ceiling. The nave is of the widest type, and it is divided into four wide bays. There is a processional path on the north and south sides. Above the arcading is a corbelled passage-way. The western end of the nave is occupied on the ground level with three porches, and a gallery is arranged over same, carried by three arches opening into the church. The north aisle is gromed, and this part is higher than the nave floor. Local brick is used externally, with thin brick courses intermingled, to give scale to the work. The treatment is severely simple. The bell is placed in a simple turret at the southeast corner of the nave. The general style adopted is 14th century of the English type of Gothic. The pinnacles of the high altar and also the altar of the Lady chapel are old Swiss work, probably dating from the end of the 17th century. The nave is 91ft. long, 49ft. wide, and 45ft. high. The length of the chancel is 40ft. and 20ft. wide. Messrs. J. T. Wright and Co., of Leeds, are the builders. Mr. Thomas Fisher was the clerk of the works.

ST. PATRICK'S CHURCH, PATHINGTON, YORKSHIRE.

NATIONAL GOLD MEDAL DESIGNS.

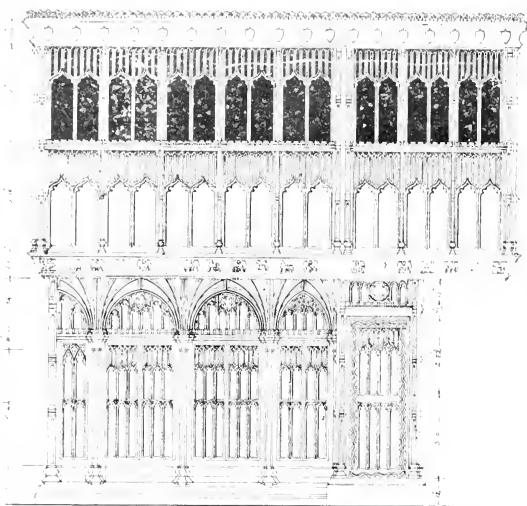
The plan of this remarkably fine and most interesting parish church of the East Riding is very similar to the lay-out of York Minster, save that the chancel has no side aisles; but the east and west aisles to the transepts in a parochial church are very unusual. The western towers at York have, of course, no counterpart in this building; but the central tower is exceedingly handsome and tall, the spire rising over an octagonal drum, as at Wilby, Blosam, and Norwich. The style of this famous church, which was rebuilt between 1325 and 1350, the great period in glorification and reconstruction of English parish churches, has been fittingly and tersely described as one of the most retrogressive examples of its date, with its massive piers and the notable absence of a clerestory, in which respect it conforms to the great churches of Yarmouth, Grantham, Nantwich, and North Walsham. The cruciform plan gives it great distinction, however, though the want of a clerestory makes it an exception in the category of big-aisled churches like Howden and Hedon. The buttresses are studiously plain, the only

sacristan's chamber. There is a hammer-homed roof in the transept, the great feature in the main roofing being a fine example of arched braces supporting the collar, which are very small and exceptionally high up, perhaps the highest old example, and offering very little tie in consequence. Its date is 1340. The walls of the aisles are only 2ft. 3in. thick. The total length of the church is 190ft., and the width, including the aisles at the west end, is 140ft. This is 6in. less than the width of the aisled transepts. The chancel is 22ft. 6in. wide. The west window is rather Flamboyant in the patterning of its graceful tracery. That of the east window, which is much larger, is Rectilinear with curvilinear mouldings. The side windows illustrate two patterns of tracery, those in the choir being larger, and the ridge of this part of the church is somewhat higher than the nave. This double page was reproduced some time ago from a fine set of delicately executed drawings, for which Mr. William Haywood was awarded a National Gold Medal. We were not quite satisfied with their reproduction, but decided to give this sheet now, as it makes a valuable record of this very beautiful example of pure English Medieval design.

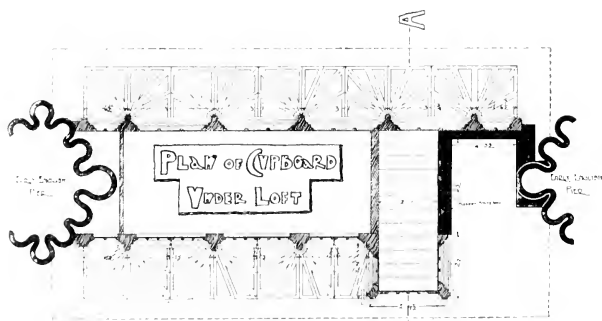
OAK WATCHING-LOFT, ST. ALBAN'S ABBEY.

The watching-loft, situate on the north side of the Saints' Chapel, St. Alban's Abbey, is of oak, and was constructed during the reign of Richard II., 1377-1399; his badge appears on it. From the windows the monks kept guard night and day over St. Alban's Shrine, which is in the centre of the chapel. In those days the shrine was covered with precious stones, and the relics, which were still more valuable, offered serious temptations to other monks belonging to rival monasteries, and other miscreants, with an eye to plunder. The loft is in splendid condition with the exception of the cornices at back and front; these have been drawn complete on this illustration from the remains that still exist. The loft has two stories, the lower one containing cupboards for the vestments and relics were kept, and the upper room, which was reached by the oak staircase, consisting of solid steps. The panels, including the mullions, with few exceptions, were carved out of one piece. Cromwell ordered the front of the loft to be covered with several coats of whitewash; traces of this can be seen to this day. REGINALD P. WELLS.

ST ALBANS ABBEY CHURCH | OLYMPIA



ELEVATION TO THE SHRINE

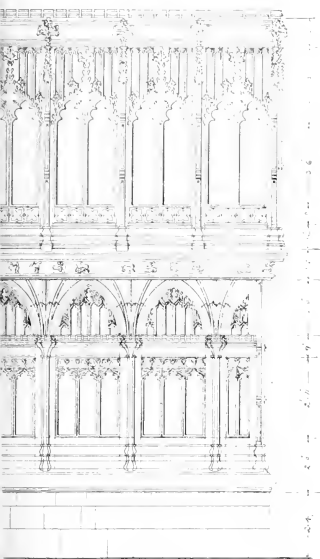


SCALE

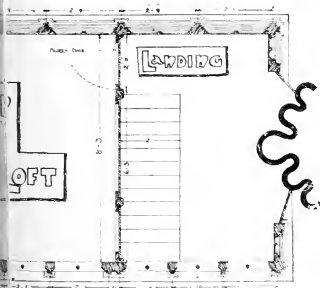


SCALE = 1/2 INCH TO 1 FOOT

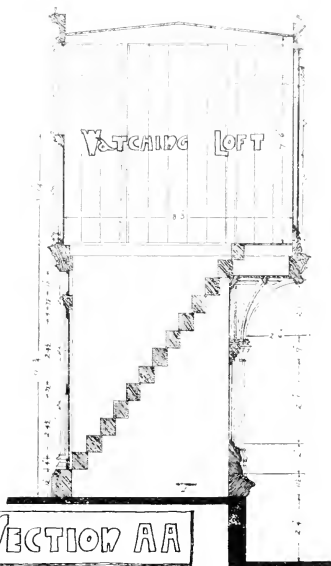
DRAWING OF THE OAK WATCHING LOFT



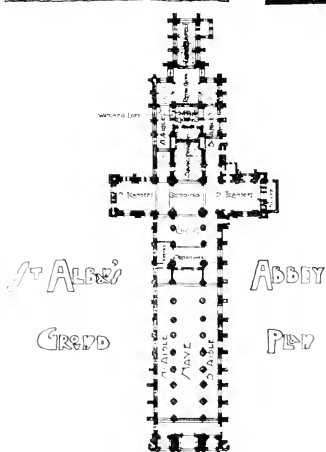
ELEVATION

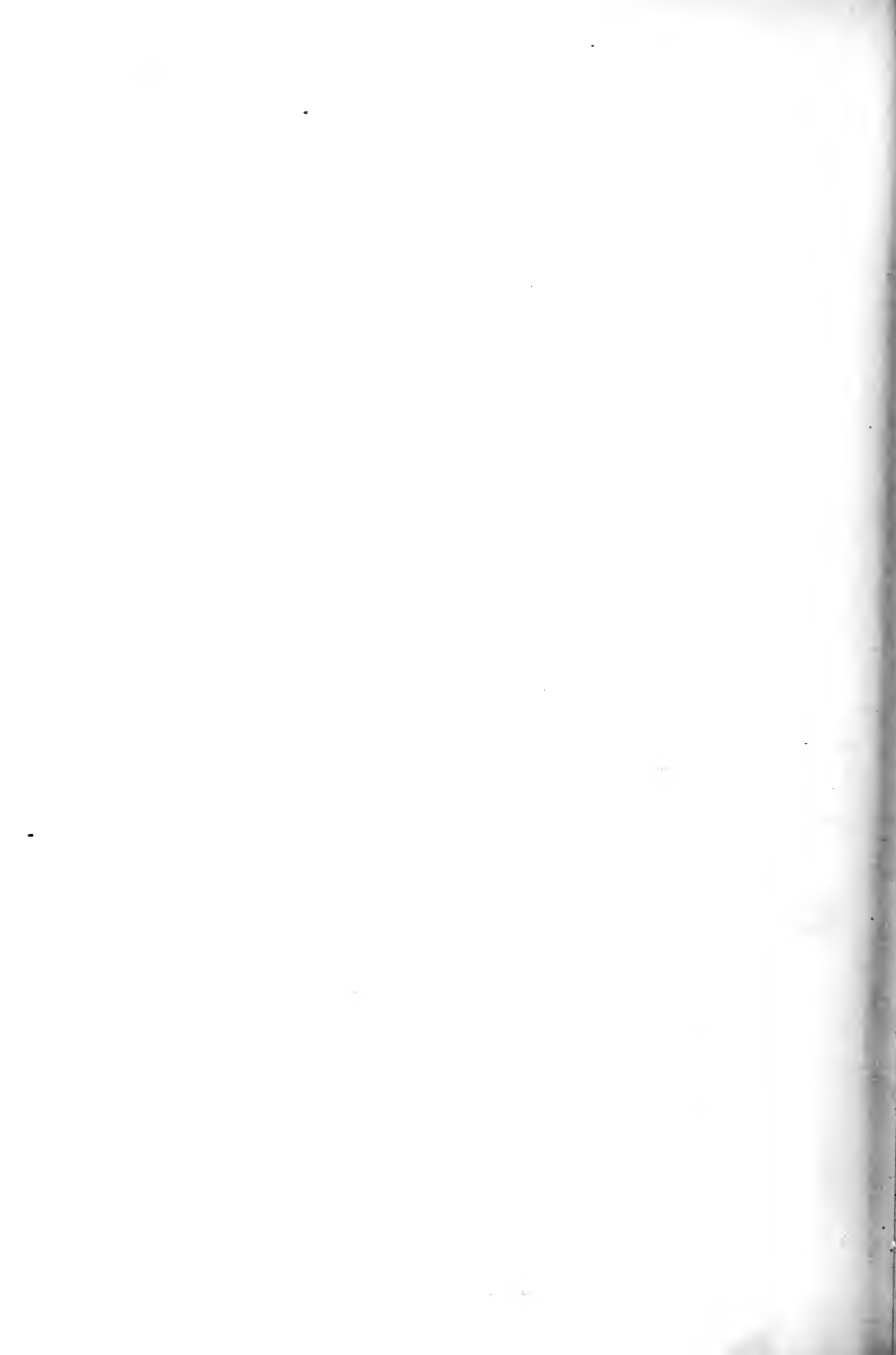


1912



SECTION AA





THE WORKS FOR THE WATER-SUPPLY OF BIRMINGHAM FROM MID-WALES.*

By E. L. MANSEGRH and W. L. MANSEGRH, M.I.C.E.

The Elan supply scheme was originated in 1890, by the late Mr. James Mansergh, F.R.S., M.I.C.E., in consequence of the inadequacy of the then existing sources. These, consisting of five local streams and six wells in the New Red Sandstone, had proved insufficient to meet the needs of the city and district, which then had a population of about 618,000. Investigation having shown that no extension of the local sources would be satisfactory, the Welsh scheme was laid before Parliament in the session of 1892, and the necessary powers were obtained. The watershed of the Elan and Claerwen, which is situated in Radnorshire and Breconshire, has a gross area of about 71 square miles, and a mean rainfall of 65in. The collectable rainfall is estimated by the authors at 57in., giving an average yield of 102 million gallons per diem. The first instalment only, that is, works for the supply of 25 million gallons per day at Birmingham, and the prescribed quantity of compensation-water to the river—namely, 27 million gallons per day—has already been present constructed; but the powers granted cover the full utilisation of the yield of the watershed and works necessary for a total supply of 75 million gallons per day to the city and district. Three reservoirs have been constructed:—The Caban Coch, which is a combined supply- and compensation-reservoir, containing 7,815 million gallons, with a dam 122ft. high; Pen-y-gareg, for supply only, containing 1,320 million gallons, with a dam 123ft. high; and Craig Coch, also for supply only, of 2,000 million gallons, with a dam 120ft. high. These reservoirs are all on the River Elan, and three more on the Claerwen are contemplated when the demand for water justifies their construction. The main trunk of the supply-mains for the reservoir—the foundations and part of the dam have been already built in order to get the work above flood-level of the Caban Coch reservoir. A submerged dam has also been constructed in Caban Coch reservoir to maintain such a water level as will charge the aqueduct to Birmingham.

From the Claerwen Valley a tunnel has been driven connecting it with the latter reservoir above this submerged dam, in order to bring into supply the dry-weather flow of that river. The compensation-water which has to be discharged into the river day by day in a regular flow has been utilised to produce water under pressure to work a large number of valves in connection with the Caban Coch dam and the valve tower at the head of the aqueduct, and also electricity for lighting and power purposes. The latter is required at the head of the aqueduct in connection with an installation of roughing-filters, which had to be made in order to free the water from germs which elsewhere had been found to cause deposit in cast-iron pipes. A short permanent line of railway was constructed from the Mid-Wales Junction Railway to the lowest dam, and while the works were in progress some thirty-six miles of main line and sidings were constantly in use. In addition, a number of ancillary works—such as roads, bridges, culverts, etc.—were constructed on the watershed. The aqueduct, which is nearly seventy-four miles in length, consists of two main classes of work: conduit in tunnel or cut and cover, and steel or cast-iron pipes under pressure crossing valleys. There are fifteen tunnels with an aggregate length of twelve and three-quarter miles, and the cut-and-cover conduit is about twenty-three miles in length. The inverted siphons, of which there are eleven in all, have an aggregate length of nearly thirty-six and three-quarter miles, and the pressures to which they are subjected range between about 25lb. and 250lb. per square inch. The pipes in the siphons vary from 41in. to 42in. in internal diameter, according to the gradient obtainable, and are for the most

part of cast iron, but for pressures over 400 lb. of head, welded steel pipes were used. Out of an ultimate total of six lines in each siphon, two only have been laid for the first instalment. The ruling gradient for the conduits, which are lay-struck shaped (approximately 8in. by 8in.), is 1 in 4,000, and that for the pipe siphons is 1 in 1,500. At the heads of all the siphons rather elaborate automatic arrangements are made to cut off the siphons in case of a pipe breaking, and also at the outlet ends to prevent water flowing back under similar circumstances. Sluice valves, air valves, and wash outs of the usual description are provided on the lines of pipes. With a few exceptions the pipes are carried over all streams and rivers crossed, and this has involved the construction of several large bridges, the chief of which is at the crossing of the River Severn between Bewdley and Arley, where the river itself is spanned by a handsome steel arch of 1,00ft. span. The aqueduct terminates at the Frankley service-reservoir, about six miles to the south-west of the centre of the city. This reservoir, which holds a little over 200 million gallons, is semicircular in plan, divided into two basins, each about 30ft. deep, and is constructed of concrete lined with asphalt and blue brickwork. Eighteen ordinary slow sand filters, having an aggregate area of about fourteen acres, have also been installed, as all the water is filtered before use. Although the top-water level of the reservoir, 603ft. above Ordnance datum, is high enough to supply water to the greater part of the city by district gravity, for certain parts pumping had to be resorted to. A pumping-station is, therefore, provided to raise water to two high-level service-reservoirs, the one about three-quarters of a mile to the south and the other about three and a half miles to the north of Frankley reservoir, each of about 1½ millions gallons capacity. Approximately, eighteen and a half miles of district mains and ten miles of main have been laid to carry the water into the trunk mains in the city. The works in the valleys were carried out by direct administration, and the remainder by contract, and the total cost of the whole of the works, including land, was, in round figures, £3,750,000.

CEMENT FINISH.

An American contemporary, *The Modern Painter*, has an interesting article on cement finish, which has come very largely into vogue across the Atlantic, and it has much to say on this side. The writer, Mr. J. A. Peck, lays down the proposition that:—"It is but natural that the painter should be called upon to finish the woodwork in such a way as to correspond with the cement used in construction. The cornices, balconies, and corbel mouldings made up of wood or cement. The writer then proceeds to instruct his readers on how to do it, which is to coat the woodwork with two good coats of oil and then sand it, and, after sanding, give it a coat of water-paint.

The writer makes a false step, says the *Journal of Decorative Art* and we, of course, agree, then he lays down the proposition that the painter is called upon to imitate cement on his woodwork. Surely the woodwork in its lines and construction has a character of its own which entitles it to be finished as wood, and not as stone. Cement construction has come to stay the world over, and it has its own characteristic lines, which all good architects, when designing these buildings; but they have to use copper, iron, or steel casements or sashes, iron or wood doors, and where they are wise they will retain the individuality and character of each, and so add to the beauty of their building.

Imitation seems innate in the human mind, and there are many places where its employment is justified; but to make wood doors, doorcases, sashes, and windows appear like stone is unreasonable because it violates one's sense of what is right. We know they are not stone, however they are painted, nor could they be. You could not conveniently have a stone door and stone window-frames. You can have stone mullions, we know; but

they usually have metal or wood frames to them. In all these things regard must be had to what is rational and reasonable.

It is a well-known fact that the painter's standard in these circumstances is to be as close as possible to the original. One of these is the well-known Northern watering place of Blackpool, and the justification is the terrible winds that blow on the front there, which drives the sand from the sea shore with such force on to the stone dressings to the houses as to fret them like a sandblast machine, which by reason of the incessant sanding has the effect of printing the stone here and sanding it to give a perfect protection against the effects of the sand-storms.

ART MUSEUMS AND PICTURE GALLERIES.

By EDWIN T. HALL, F.R.I.B.A.

Let us consider the main lines and general principles on which an art-museum should be designed. First of all its entrances and exits. There are often priceless works of art in such a building, and as there are thieves in the world, it is not desirable to have more than one door or group of adjacent doors both for the ingress and egress of the public in normal circumstances, so that all may be under observation by the same attendants. Fire escape exits in a large building may be necessary, but these should be safeguarded. The common ingress and egress facilitates the placing of cloakrooms. A spacious vestibule or hall will, of course, be necessary, and should be commensurate with the dignity of the place. Assuming a large building on more than one floor, the main staircase should be conveniently near the entrance. Of course, there should be other staircases in different parts. In a relatively small building a very usual plan is a rectangle with a central court, the staircase being in the centre or at the entrance. The administration offices should, of course, be near the entrance, and the rooms for those who have merely business relations with the museum, so that these may not interfere with the visitors. The general disposition of departments demands attention. Top-lighted galleries may be placed in internal courts, with rooms around them, or they may be on the top floor. The latter position is, I think, preferable for many reasons, one of which is that if the central gallery has a roof at the height of the surrounding building this will be quite unsuitable for anything but sculpture or architecture, and if the roof be kept down the shadow from adjacent buildings will be objectionable. Another important feature is to form alcoves in the gallery, so that statues or groups may be isolated and attention concentrated. The advantage of this is seen in the cabinets of the octagonal portico of the Belvedere, in the loggia of the Villa Albani, and I note that this is a feature of the Welsh National Museum. Of course, in considering sculpture galleries, regard must be had to the ready accessibility for heavy masses to be brought in from outside, and a basement road access is necessary for cars. While on this subject, the question of the position of displaying originals and copies. It is not uncommon to find both in the same gallery, but this arrangement is challenged by experts. We now come to the general disposition of other galleries in a museum. What is to be the principle on which they are to be laid out? Are galleries for all the different exhibits on a floor be in a range of rooms to open into one another, so that a visitor shall pass through all and make a circular tour back to his starting place? Are galleries to be in groups, so that each group shall take one branch of art and illustrate it through all time? Should art work of all kinds of each period or era be illustrated together in the same room or gallery? For convenience of administration and supervision only, the one continuous range is better. Large numbers of people are passing in only one direction, and do not interfere with those following them. On the other hand, if a visitor wants to contemplate one period of art—be it painting or any other manifestation—

* Abstract of a paper discussed at the Ordinary meeting of the Institution of Civil Engineers on Tuesday, April 2, 1912.

Read before the Royal Institution of British Architects, Monday, April 1, 1912.

he has to run, and the other rooms mere passage-rooms, and this is further disturbing to the art student in those other rooms. In small museums or galleries the question settles itself. The floor area is limited and the galleries are only one floor, become a managed unit, and if well arranged, meets with general acceptance. The general principles of the scheme having been considered, we come to the ordinary galleries, as far as I can gather the general feeling in respect of all except picture galleries is that side-lighted rooms are best. The subject of the last of the picture galleries is one on which much has been written. The lighted picture galleries in museums should not be more than 30ft. wide. The very few extra large pictures demanding greater distance for observation can be placed at the ends of galleries. Any greater width makes the height too much. The walls are not required to be in line with the row of pictures is best for their proper appreciation, but two pictures are admirable when they are not too large, so that a height from the floor of 15ft. to 15ft. is ample. At the new Birmingham galleries 15ft. 6in. has been adopted. Attempts have been made to lay down laws as to the relative area of skylight to floor, but none of general application, as the light varies in different latitudes, and, moreover, the light in an English city, with its pollution by coal smoke, is much less than in France or Italy. As to the colour of walls, there is a great difference of opinion. Nearly all agree that the background for pictures should be dark. At the National Portrait Gallery in London the latest decoration to the second main range of galleries has been black. This may be most for the picture, but the conspicuous black remains on the eye, and is oppressive. I think it may be safely said that a background is successful in inverse proportion to its obtrusiveness. Many artists favour red; but probably the colour scheme of every room in any permanent gallery can only be settled by adapting it to the nature of the pictures, and to the material, silk, tapestry, plain, and velvet are beautiful, and they absorb light, but are too expensive for general use. Unequipped or painted paper and canvas are frequently used, but deep canvas and plain, unvarnished paint are also used. No picture galleries should be decorated with anything but their pictures. Sculptural ornaments, heavy gilding, and architectural ornaments to panels for pictures are out of place, and distract the eye from the paintings. An important feature of a museum is the reserve galleries. They should be adjacent to the other galleries, to facilitate ready exchange of objects. There is another advantage in this plan, its elasticity. Another matter of interest is that there should be students' research and copying rooms off each department, where students may be quiet. Each department should have for its keeper a room, well lighted and quiet, and convenient of access for visitors and students. The children's room as part of a museum equipment is a modern adjunct, and it should be near the entrance. Last of all the public rooms, a lecture hall, which it is advised that the museum should have separately entered from the outside, so that it may be used when the museum is closed. It requires its separate entrance, its own exits, etc. Its form depends on circumstances. It is hardly necessary to add to this the remaining working department, and as it is we have travelled over a new field.

KEY-STONES OF BUILDING.

THE purpose of this book is, however, there is really not much about building in the idea being that the architect should understand with it and lend a part to his client at the outset, so that the latter may be clear of all that is going to happen when he comes to build.

What can a client expect to tell possible clients? There are not legal rules, but quite enough at the start we hesitate to say, of the things which tend to conduct street of

this sort of advice is to the choice of an architect.

THOMAS HUGHES.

The position of E. in search of an architect is rather a difficult subject. We must suppose that he is unimpaired with the subject and is quite conscious of the fact, but is equally aware that by the time he has found his building he will have accumulated a good deal of knowledge, and will be disappointed if he then finds that he has employed one of the wrong sort.

He calls in the man whose name he most often hears mentioned, he is in danger of securing one who deals more in quantity than quality. It is on the other hand, he selects the most effective work on the subject, and he is not likely to find an address in the corner of the drawing, and acts on that, he will possibly find that the qualities of the drawing which attracted him were due to his hand, and were never an index to the powers of the man he has chosen. He may pick up a laudatory article in some periodical and be impressed by it, in sublime unconsciousness of the possible inspired origin. Next as I think for our profession, the pitfalls laid to catch him are many and subtle; it is a lucky choice when the humble caver the sea. The letters F.R.I.B.A. will be no reliable guide for years to come, as there are still many non-members of the old regime who were surveyors in deeds and practice, and architects only on paper. E. can, however, use his own personal judgment of a man when he sees him, and he will not be disappointed if he finds that it will inevitably be a reflection of its author in every detail.

We may explain that "E." is the Employer, of course. It doubtless saves space, even if scatters capital letters throughout the paper, rather than poring to decipher the parties as A, Q, S, B, W, and E, and imparts the charm of apparent impersonality. Anyhow, having got him his A, and induced E. to launch out on a model new building in the country at a proposed expenditure of £5,000, Mr. Thomas tells them how to arrange an agreement based on the basis of the fee, and the fee, though, in his opinion, it is rendered unnecessary by the inclusion of many clauses that do not refer to architects at all. That done—with the help of a lawyer, we suggest—they get, of course, to sketch designs: "Discussion Drawings." Mr. Thomas likes to call them, and A. produces a rough estimate which "can only give an approximation." If all goes right, everything is satisfactory, of course, and the rest is routine. It does not always, as another E. finds out in a chapter entitled "Deep Going." The particular E., who read A's letters, "prepped against a whisky and soda," said to himself with the cheery optimism of the trustful client: "If that little lot can't be done for £5,000, what can the rest be? I have exceeded £7,000," and when he woke up to the fact that the little lot had exceeded £7,000, "he no longer looks upon A. as the dove, but declines to view him as a wolf in sheep's clothing." And our of this sort can never fail to bring our clients, young architects; whether as you grow older you will still keep copies of Mr. Thomas's book on hand for their enlightenment we are not sure. Let us hope, for his benefit, and the credit of human nature.

Elsewhere in the book there is no lack of matter clients ought to master. The chapter on the layout of the surroundings of the buildings is good, as one might expect from the book on "The Formal Garden," which the author and Mr. Blomfield brought out in 1892. So are those on "The House of the Future" and "No Hesitation as to the expediency of consulting it among clients hinders us from advising all architects to buy and read it. It may help some to endure the coming holidays, more or less blissfully dreaming of generous clients enlightened by Mr. Jingo Thomas to a due sense of their responsibilities, not forgetting to ponder his closing words.

It is not unusual to hear an architect described as being "a very busy man." This is a doubtful meaning that deserves a word of comment. It was pointed out in the third chapter of the last part of the book that, if a man is very busy, he is not likely to be a good architect, as he is practically engaged in the work, and would have a careless interest to think it was other work, and in this way it is detrimental to the profession. It is true that a busy man will have larger ideas than another, or may be for the use of comparatively expensive materials; but it is a pity to suppose that a busy man does these things is ever incurred without the employer's authority!

No less often has one heard it said of some particular building that E. was his own architect.

Just what is meant I really don't know, for there are probably few desirous people who would give time enough to carry through the operations that I have described as the work of A., even to the standard of an amateur; and A.'s work in the making of drawings, which forms by far the greater part of the work of an architect, is as hardly admits of description. At the same time, it is in this matter far excellence that he proves himself an expert, for his other work deals with the qualities that are purely architectural. Of these, perhaps, the most important is space, which, like time in painting, is more more capable of demonstration by an expert than of treatment in print. In short, it is only the business-side of architecture, and not the craft, that can be brought within the scope of the work of A.

The truth of the last three lines, at any rate, is beyond controversy!

COMPETITIONS.

THE AUSTRALIAN FEDERAL CAPITAL COMPETITION.—Over one hundred designs for the laying out of the site for the Federal capital have been received by the Minister for Home Affairs from all parts of the world. Most of the designs are submitted by foreigners, and a further batch from Sweden is reported. The Minister therefore extended the date for receiving the designs until the middle of February. The original intention was to appoint three Government servants to constitute the Board, whose duty was merely to report on the designs, whilst the Minister himself was to make the awards. The Minister, however, has altered his tactics, and now seeks to obtain a board from outside sources. The "architect" he has not been able to secure. He wrote to the Institute of Architects in New South Wales, asking that body to nominate the "architect" of the board, but in vain. Yet, after he had received his relief from Sydney he implied by a statement in the Press that the Institute would make the appointment. The hon. secretary of the R.V.I.A., however, exposed the trick by giving publicity to a copy of the New South Wales Institute's refusal in the daily Press. Needless to say, the latter institution has not been asked to nominate the architect member of the board. The Victorian Institute of Engineers is represented on the board by Mr. J. A. Smith, the president, and the Surveyors' Institute by Mr. J. M. Coane. Until the board is constituted, nothing is likely to be done with the designs, nor is the report the board is likely to be made public at an early date. The latter institution, that Mr. John Kirkpatrick has been selected by the Minister, owing to the refusal of the Institute of Architects of New South Wales to nominate the architectural member of the board. Each of the three members of the board is to receive an honorarium of £100. One hundred and twenty-eight designs have been received.

WEIR CHARITY HOSPITAL.—The trustees of the Weir Charity, entrusted with the building of a hospital for the benefit of the inhabitants of Streatham and the neighbourhood, have selected, from the designs submitted in competition, that of Mr. R. J. Thomson, F.R.I.B.A., of 49, Hill-road, Wimbledon. The scheme has been approved by the Charity Commissioners, and the work is to be proceeded with forthwith.

The second "smoker" of the session of the Society of Architects, which was held at 28, Bedford-square, on Friday, April 27, 1912, was the hon. secretary, Mr. C. H. Hulson, will be glad to receive the names of any members or students who are prepared to take part in the entertainment.

The directors of Alfred Goslett and Co., Ltd., have declared a dividend of 8% per cent. on the ordinary and cumulative preference shares, after all deductions for depreciation, bad debts, directors' fees, bonus to managing directors and employees, and plant and machinery, leaving 19% per cent. of the net profits to reserve. This compares with 9% per cent. for 1910.

At the monthly meeting of the Taunton Borough Education Committee on Monday, the clerk reported that the local council had rejected the proposed tender for Messrs. G. Pollard and Co., of Taunton, for building the new Primary Council School, the amount being £5,175 17s., and the committee appointed Mr. Parsons as the clerk of the works during the erection of the school at a salary of £3 a week.

PROFESSIONAL AND TRADE SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—The following letter has been addressed to the members of the Birmingham Education Committee by Mr. E. Marston Rudland, secretary of the Birmingham Architectural Association:—"Dear Sir, The attention of my council has been called to a report in the *Daily Post* of the proceedings of the education committee. It would appear from the report that the education committee proposes to entrust the building and alterations of schools in the old and newly added areas to their official architect. My council consider that this is a deprivation of work to the practising architects in the city who have formerly had a share, and is a violation of the general statement made that the creation of Greater Birmingham should not result in injustice to any section of the community. At a meeting of the general purposes committee, at which a deputation of the Birmingham Architectural Association was received, it was estimated that the cost would be no less than £100,000. Architects were employed rather than if the work was done by an official. Further, it is a question whether work executed by different architects is not more suitable to meet the changing conditions than work produced by one official, however capable. If, however, the education committee prefer to retain the services of a permanent official, my council consider that the area being much extended will require the whole time of one man efficiently to design and superintend all the work in the alterations and new buildings required, and if he is allowed to continue private practice as well, the work will suffer, and one member of the profession will be subsidised at the expense of the remainder. Is it a fact that more than two complete schools will probably be erected in any one year? Trusting that you will give your support to the contention of the architects generally, both on the education committee and on the council. CHAS. E. PATEMAN, President, Birmingham Architectural Association."

EDINBURGH ARCHITECTURAL ASSOCIATION.—A view of the interior, with an investigation of the under-building, of the new Usher Hall was afforded on Saturday to the members of the Edinburgh Architectural Association. The visitors had the advantage of explanations by Mr. John Darge, the clerk of works, who was accompanied by Mr. William McLeod, representing the contractors, and the representative of the company who are carrying out the reinforced concrete work. A visit was first paid to the under-building. Attention was drawn to the duct, 9 ft. wide, running round the building by which the water is led to the ejection point. It was explained that the hall was almost entirely built on rock foundation. The burs that were put down had proved to be misleading in some places. The builders were supposed not to find rock for 1 ft., but they had got to rock 3 ft. or 4 ft. below the surface. On a previous visit by the geologist, Mr. Darge stated that they had informed the visitors that they believed the rock to be an upthrow of the Granton rock; and they also believed that the site was very near to the mouth of the crater from which the Castle Rock had been flung. With regard to the drainage, they had from the low level drawn a heading through the basement, levelled the Syndicate Hall, to get a connection with King's Stables. The organ-space is located next to the boiler-house, the tall chimney of which has been erected; and the location of the fresh air inlet for the organ will afford an automatic means of warming the air, which is also provided for by coils placed in the pipe. According to a higher level, the visitors were shown the large corridor, and entered the building, and points in the cantilever system adopted for the grand tier and upper galleries were explained. The dome has a diameter of 122 ft. The grand tier cantilevers have an overhang of 20 ft. 7 in. Between the ceiling under the grand tier and the floor above there is left a space of 4 ft. to form the air-extraction ducts. In the

treatment of the doorways moulded bronze is to be employed, with panels of polished Ailsa Craig granite. On ascending the staircase leading to the grand tier, it was stated that the walls will be faced with Roman stone or Trieste marble, with Sienese panels. The steel rods imbedded in the concrete, it was stated, were all tested at a pressure of from 20 to 32 tons per square inch. The dome will spring from a line 30 ft. above the cornice line of the wall as it is at present seen. The clerk of works stated he had no doubt about the good acoustics of the hall. At the conclusion of the visit, Mr. Mainman, on behalf of the architectural association, moved a vote of thanks to Mr. Darge for attending and giving them the detailed explanations they had received.

NEWCASTLE UPON TYNE AND DISTRICT CLERK OF WORKS AND BUILDERS' FOREIGN ASSOCIATION.

A lecture on "Marble" was given to the members of the above association by Mr. G. Bennison, of the London Art Pavements and Decorations, Ltd. It was shown how we are indebted to marble for a great deal of our historical records, and that in our modern buildings our great sculptors are immortalised. The ruins of the ancient Grecian were principally built in the marble of Mount Pentelicon. These quarries, being lost to us for centuries, have of recent years been rediscovered, and are now being extensively worked by a large company with British capital. The marble of these quarries is well known as Pentelicon marble, and is extensively used. In London many large buildings have been faced with this material, and from the short time in which they have been erected the marble seems to stand our atmosphere well. After having explained the formation of marbles from the geological theories, a few words were said upon the chemical composition, and it was explained that the various chemical properties of the marbles their beautiful colouring and markings. Coloured slides were next shown of various marbles representative of the various classes of these marks as known to the commercial man, viz.:—Sacharoid, variegated, fossiliferous, brecciated, laminated, uncoloured, crinoidal, travertines, and serpentine. The working of the quarries was then explained, both as carried out on the Continent and America, and the various methods of extraction of the rocks from the quarries was carefully explained, viz.:—Drill, plug and feather, channelling, and wire helicoidal-saw. A lengthy explanation, with the aid of photographs and diagrams, of the working and exploitation of the wire saw followed. Photographs showing how the waste of the older methods of quarrying—viz., blasting etc., now greatly impedes the present day workings. From the quarry to the works was the next step, and it was shown how the blocks were sawn, moulded, and cut principally by the use of carbundum cutting wheels, followed by a clear explanation of the various stages of polishing by machinery. Photographs of many beautiful works executed by the Art Pavements and Decorations, Ltd., London, were then shown, which concluded the paper.

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.

On Tuesday week, at the monthly meeting, two papers were read, one on "The Origin of Irish Romanesque Architecture," by Mr. Charles McNeill. Mr. McNeill insisted that there was a considerable connection between the Romanesque of Scotland and Ireland, and that the latter was derived from the former. The paper, "Carvings at the Rock of Cashel," was by Mr. P. J. Lynch.

An extensive scheme for the restoration and improvement of Cowfold Parish Church, which is now in contemplation, is to include a new altar table and reredos and new chancel window, and application is being made to the Consistory Court of York for a faculty.

The death is announced of the advanced 529 of John de la Boscombe, Bournemouth, of Mr. John Omer Cooper, in his day a well-known auctioneer and surveyor at Reading, where he was head of the firm of Messrs. J. Omer Cooper and Son, from which he retired some sixteen years ago.

Building Intelligence.

ALDERSHOT.—Steady progress is being made with the new Catholic Church of St. Joseph at Aldershot, and the foundation stone was laid on March 19. A limited competition was arranged, the architects engaging in which were given fixed lines to work on. The style was to be Romanesque, the material clay in some shape or form, brick, tile, or terracotta. Plaster was to be avoided; the colour effect inside and out was to be dependent upon that of the materials used, so as to be permanent, and not standing in need of renewal every few years. An apsidal treatment of the east end was suggested, and the sloping nature of the ground, falling away to the east, showed that the sacristy would, with economy of space, fittingly find a place under the sanctuary, which would be well raised above the nave level. A chapel of Our Lady, which was to be as large as possible, so as to serve for the week-day services, was to be provided, together with a Chapel of the Holy Souls, which would accentuate the memorial character of the building. On these lines several designs were prepared, and finally that of Mr. George Drysdale, a former pupil of Mr. Leonard Stokes, through whom it was submitted, was adopted. His solution of the problem differed from that of all other architects in his having adopted an axial treatment of the site, which, although the two sides of the church to be practically symmetrical, solved the difficulty of a single roof, arranged for the two chapels by the provision at the east end of what is essentially a narthex with apsidal ends, in which the altars will be placed. This narthex is raised two steps above the nave level, cut off from the nave, but giving through the separating arches an excellent view of the high altar. It will be seated with chairs, which on week-days will face the side altars, and on Sundays will be turned to face the High Altar. Above is a gallery which, if so desired, may be used for organ and choir. The style is based on that to be found in North Italian churches of the 9th, 10th, and 11th centuries.

BRISTOL.—At the meeting of the Bristol Guardians last Friday the tenders were considered for the conversion of Southmead Workhouse into an infirmary for acute sick indoor poor, under the influence for the improvement of the classification and accommodation for the indoor poor approved by the guardians on June 16, 1911. The tenders were opened and announced as follows:—Contract No. 1, builders' work—£33,950, £36,612, £37,952, £38,888, £39,000, £39,500, £39,700, £40,870. Contract No. 2, boilers, economisers, steam-pipes, pumps, heating apparatus, hot and cold water mains and services, hydrants, kitchen fittings, etc.—£3,783, £6,267, £6,360, £6,565, £6,610, £6,607. Contract No. 3, electric-lighting generating plant—£1,347, £1,387, £1,404, £1,421, £1,439, £1,461, £1,576, £1,592, £1,615, £1,686, £1,688, £1,744, £1,760, £1,765, £1,811, £1,834. Contract No. 4, electric-light, wiring, and fittings—£897, £939, £9, £1,089, £1,120, £1,129, £1,150, £1,192, £1,191, £1,290, £1,217, £1,410, £1,440, £1,478, £1,683, £1,772. Contract No. 5, laundry machinery, motors, and appliances—£625 5s., £610 14s., £714 10s., £741 8s., £771, £800 15s., £801 10s., £809 10s., £843 2s. 6d., £858 15s., £880 10s., £909, £1,081 15s. A long and somewhat discursive discussion followed, one gentleman stating that another, a clergyman, "would have stopped the building of Solomon's Temple on the ground of expense." Ultimately it was resolved to accept the lowest tenders provisionally and to nominate a committee. It was suggested that the names of the firms tendering should be made known; but it was agreed that the clerk, Mr. J. A. Simpson, stating that no one but himself knew the names.

HEBBURN.—There has just been completed a new block of offices for Messrs. Hawthorn, Leslie and Co., Ltd., Hebburn, designed by Messrs. J. A. Simpson, a continuation of the existing offices, and the present main entrance gives access to both. In the basement of the new

RECEIVED.—N. W. C.—S. M. D.—B. O. Co., Ltd.—
H. H. S. Co., P. E.—R. and Co.—W. and Co.—
T. and J.—Q. S. A.—D. Bros., Ltd.—B. of S.—M. Bros.—
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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinham House,

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OUR ILLUSTRATIONS.

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Chapel Stalls, St. Paul's Cathedral. (Sir Christopher Wren, Architect; Grimling, Gibbons, Carver.) Drawn by Mr. J. Crangie Bone.

BUILDING NEWS Designing Club. Three Designs for a Stone Bridge and Toll-house to the Stadium of a Century Town.

The Late Mr. Elijah Hoole, F.R.I.B.A.

Messrs. Catesby's Bungalow at the Ideal Home Exhibition.

Brick Ornament.

"THE DAILY ROUND—THE COMMON TASK."

All men hate sameness, and yet sameness is what every man, with very rare exceptions, wants to impose by force on every fellow-man. It does not get imposed, because every man wants a minority of his own. John's pet money is a fact that sickens Harry; and Harry's is of the sort that makes Alfred and Charles and Egbert sick or delirious if they only get a casual glimpse of it. If they could only agree, no doubt they would begin with A; but that is what they have never managed so far, and what, please the gods, they never will manage. For it is not on the same subject that they disagree. John wants to see the same politics imposed all round. He cares nothing about science, or art, or history, or morals. George has an ear for music, and never troubles about anything else. His idea of the future is that every barrel-organ, in every street shall start the same tune, to the same words, by the same composer; and when you ask him how he will make sure that some of his organs will not start a moment sooner, or a moment later, than another one, and so will be out of harmony with it all the way through, he answers that the difficulty is obvious enough, but will certainly be removed when all barrel-organs have been brought to work at the same time and the same set of words. George cycles; Egbert is rather of a missionary spirit; and he feels that if new converts were everywhere baptised at noon, their heads would everywhere dip below the surface of the fluid as the clock struck twelve, and would leave it long before another hour was signalled; and then wars and fightings for spiritual reasons would be for ever ended. But how can they be ended, he easily asks, when no two of us cares about the same subject, and none of us can ever hope to convert a brother who, for the time, seems to be in the wrong? The first thing to do is to agree on the subject for agreement; and this, after ages of dispute, we have never done in the past. Shall we ever do it in the future?

The troubles of the John and Egbert brothers, multiplied by millions, and added to in ways which nobody would foresee, are the troubles of the world. Blessed troubles! for it is owing to them, or to things like them, that most of us are not in prison for the attempted murder of Mr. Gladstone, or the attempted assassination of Mr. Disraeli, or for attempts to destroy Socialism (of every branch save our own favourite one) by blowing up its followers into "air, into thin air." Our prisons, were it not so, would want instant enlargement; our bloodthirsty laws would

want instant re-enforcement. The popular cry would be, not for the abolition of capital punishment, but for making it universal. And when it was so made, it would not do all that was expected of it, nor even a thousandth part so much. "Nation shall not rise against nation," in the distant view of long-sighted "seers"; "neither shall they learn war any more." They learn it fast enough at present, it seems to most of us; and this time appears very near when they will learn little else. All men hate sameness, and the reason why it has not been imposed on everybody is simply that every imposer wants a different sort. Most of us in our hearts might agree to sweep away much of what is; but we want what never can be, which would be clear to most of us if we once began to fight about it.

It is not every one who is a born fighter. Some of us are too lazy, and some too languid. We would let things take their own course for a while, and see what that course appears to be. If it turns out to be a very unparliamentary course, we might finally object to it; but not, of course, in unparliamentary language. How far this would affect the world we shall never know till we try; but probably very little. Perhaps the world, being insane, would shut us up in a large lunatic asylum, and do its own fighting in our absence. In course of time, it would have done it all, if "those who made the quarrels were the only ones to fight"; and the others would have died, or would be dying, for want of something to eat. Should this be so, then "What to Eat, and Who's to Eat It" may be what is to be settled by the Armageddon—the last great battle on earth, as it bears the cause of so many minor ones. It would only be the last if no fighting men or boys were left to fight another; a thing which might quite easily happen. But great events do not always spring from equally great causes, as the most decisive battles, whether by land or sea, are seldom those in which most combatants were killed or wounded. So far, we have supposed our combatants to have serious grounds for disagreement. But they would disagree quite as much, and quite as long, if it were about a mere question of colouring a leg-cabin or a rough stone wall. A wants to dig the clay it is built on, and mix it with water. B wants to leave it as it is, and to let wild Nature supply what she approves in the way of ornament. And C wants to give the chapel a tint that will make it all over alive. The other letters of the alphabet, if called on, would have their "views" on the subject; and if we watched its developments, we might soon agree with whatever person it was that borrowed the wise king's

remark, that "It is better to dwell in a corner of the house-top, than with a brawling woman in a wide house." "When the wicked rise, men hide themselves; but when they perish, the righteous increase." These are the sayings of a simple age; but there is some truth in them for ours.

Why do people in society (or, rather, in societies) all want to set about the same silly thing at the same moment? Take children in an infant-school. If you ask them, they will say: "Because it is the fashion"; but they repeat it because it has been repeated to them. Why do they hold up their right hands when the mistress holds up hers (all except little Jacob, who holds up his left hand because he thinks that one has the least work to do)? And why do they spread their fingers and shut their fingers when the dominant lady sets them the example? Perhaps she could say why. They could not tell you, not if you spoke to them in rhyme, and said, "Gentle shepherd, Tell me why?" We, who are a little older, know that we are all learning to do what other people do; and that it is in so doing that people's lives are principally spent; no matter whether the thing copied is a good thing or a bad one. Soon you will find in the world opposing teachers, who will want you to hold up your left hands when your teacher says "Right," and so to be as contrary as you can, all through the lesson; and unless your kind parents beat you well, and box your ears till they nearly break your necks, some of you may grow up into oppositionists, and opposition secretaries, and opposition leaders. Not that doing all these things for the opposition will hurt you or anyone else in the long run; they will both come to about the same thing; but your parents will want you to vote on their side, and will say how glad they will think you if you do, and how naughty all good persons will think you if you don't. Some day, perhaps, you will get sick of the people that call themselves good, and leave them alone for ever. Once in a while, perhaps, they believe they are so; but that must be when they are very young, and of an impossible type. "Out of these contrivances there is much matter to be heard and learned." But that will be for you, when you are older, and no less in time to believe all you hear.

Imitation does not begin with the infant-school, though from that it extends onwards till people are "past learning." For learning with most men is mere imitation of something which somebody perhaps devised for a different purpose. If you have devised a building with hard stone and granite columns, so placed as to obstruct no one's view, somebody else will

some and copy it with wretched imitations, cranes and paltry, and will then boast as if he had invented the whole miserable thing. And architects with some power of invention will applaud him, and pretend to believe that the fancy for substituting thin steel props for sufficiently stout stone ones was his idea (the brain-sucker's), and that it is a wonderful novelty, and a thing to be copied by all architects in all future ages. But why do empty-headed people build these empty-seated places; or why did they build them, not seeing how soon they would be out of fashion? Cheaper things, and nastier ones, are in favour to-day, and I cheaper ones yet may follow; the cheap-and-nasty school might as well have left your stone-column panel alone, and have modelled its own nastiness on its own lines. But "As long as skies are blue, and fields are green,"

Morning will usher night, night urge the morrow,
Day waken day, its grief and not one year to sorrow.

What we seem to want, is not so much a new censor of plays, who shall have power to keep all bad ones from being performed, as a censor (old or new) who shall keep every line of poetry out of the reach of our non-poetical "mobs." What use can they make of it, except to misapply it, and destroy it? There is what some people think a drama, and a very old one; the drama of Job, who began as a great man, with many children and much cattle, the greatest of all the men of the East. Suddenly "by the blast of God they perished"; children, camels, flocks and herds; some of them the lightning slew, some the Chaldeans carried off; and Satan afflicted Job himself with sore boils from head to foot. "His days were swifter than a weaver's shuttle, and were spent without hope." His breath was corrupt, his days were extinct, the sepulchre was ready for him. "In a few years more he expected to go the way that he should not return." "O that I were as in months past, in the days of my youth, when God preserved me!" "The blessing of him that was ready to perish came upon me, and I said, 'I shall die in my nest, and I shall multiply my days as the sand.'"

But the Lord blessed the latter end of Job even more than the beginning, and he saw his sons, and his sons' sons; that is, four generations. "Perhaps it was a very early 'Morality.' " Scripture play; perhaps it was founded on a fact; for things do happen so sometimes. "For he that endureth to the end, the same shall be saved."

BRICK ORNAMENT.—I.

THE USES OF MOULDED BRICK.

The use of the moulded brick for ornamental work is one which has not been grasped as it should, or the still further possibilities of this part of our accessory, adaptively recognised. To-day we find the moulded brick mainly used for pilasters, stringcourses, or panels; and the majority of cases by a more or less feeble imitation of Gothic, Classic, or Renaissance work, or a bad combination of all three.

It is not necessary to elaborate this section with examples of its uses, and positions. Combinations of individually moulded bricks forming such completed features can be seen practically anywhere, although it requires a very thorough study of Cases and literature to utilise to the greatest advantage such as are based on these principles. European architectural writers where the moulded brick is more or less correctly understood, with more original and beautiful results, to the advantage of ornamentation in the medium. Perhaps the principal one to be mentioned is, in paneled work, the use of moulded bricks in the simplest of all of

moulded brick are shown in Figs. 1 and 2. Taking these for a basis to work upon, their application to paneled ornamentation is shown by the succeeding figures. The first illustration on Fig. 3 shows the application of the splayed brick to small pattern diaper-work of half brick width, in raised and sunk work, with a half brick spaced opening. The

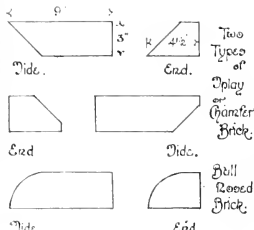


FIG. 1.

second illustration on this figure shows similar bricks utilised for flush-faced patterns, or a simple sunk opening. These bricks usually have a splay of 45 deg., and are readily obtainable at this angle, as also are the common triangular or pointed coping bricks for flim. walling; these, hatched together, form the centrepiece of the diaper.

Here, at once, we have all that is requisite

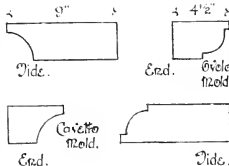


FIG. 2.

for the designs shown—in materials ready made to hand, obviating any necessity for cutting in their actual execution; whilst many of the other designs illustrated would require very little cutting in the way of specially placed bricks to obtain a different or an elongated pattern on the same principle. In studying out the latter it is essential to take one of the samples of mouldings here shown, as applied to varying widths of panelling, as the same difficulties



Fig. 3. A row of bricks showing different patterns: half brick spacing, offsetted relief in color, and a central panel.

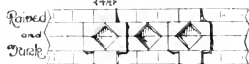


FIG. 4.

pointing occur with any variety of the moulded brick, when used in these positions. The next two illustrations (Figs. 4 and 5) show the same variety of brick used in the water one brick spacing; whilst the second illustration on the latter figure shows a point to be avoided, on account of the bad weather joint formed, and which would, in consequence, have a tendency to deteriorate quickly. As will be seen, it is necessary by this method to cut two or three of the bricks

to obtain the continuation of the correct bond in the same courses, without interfering at all with those over or under. Fig. 6 shows a method of using the bricks in their entirety,

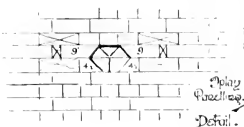


FIG. 4.

without any extra labour of cutting at all. It involves, however, the introduction of stretchers in the positions indicated in the heading course, to pick up the bond, thus breaking the customary uniformity of this course to some extent. A Queen closer is also used, as indicated, for the same purpose, in

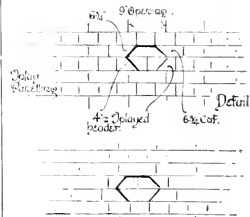


FIG. 5.

the stretching course, which helps to form the splayed brick panel, again breaking the uniformity of this course. One portion of the panel itself is formed by the insertion of the above-mentioned pointed coping bricks if the double splay bricks required in this position are not readily procurable.

Although it may be considered a disadvantage to break the correct uniform bond, as shown by this illustration, it is really not

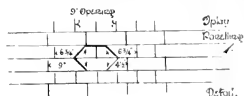


FIG. 6.

a noticeable point. The vertical jointing is broken correctly enough for all practical purposes, whilst the trifling lack of uniformity in the horizontal joints is quite unnoticeable in the general scheme, particularly from a distance, with the more powerful pattern formed by the panel itself as a foil. In many instances, though, the possibility of forming some species of ornament by way of relief, either in a continuous line or by grouping,

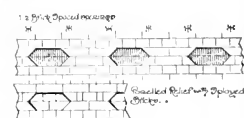


FIG. 7.

this, saving the extra labour entailed by cutting, would prove a distinct desideratum. In all probability it will mean the difference of using some system of ornamentation or none at all. Fig. 7 shows the same-shaped panel adapted to one-and-a-half brick widths. The two courses forming the panels in the first

illustration on this figure being mainly built with stretchers, giving a broader effect, more in keeping with the wider panelling. This course is, therefore, picked out into stronger relief by the heading courses above and below. It is a method quite admissible in many positions for ornamental work of this nature.

In the endeavour to introduce regular alternate coursing, with the least amount of



FIG. 8.

cutting, and that only in two of the panel bricks, a couple of Queen closers are used, as shown by the second illustration on the same figure. There is the same point to be noted in this illustration as mentioned previously—viz., it should not be used in the reverse position, as shown by Fig. 8. The weak jointing at A.A., immediately off the splay, would have a tendency to perish quickly. Figs. 9 and 10 show this panelling

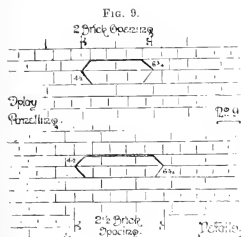
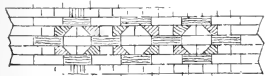
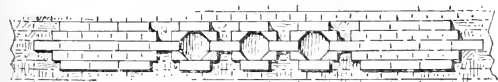


FIG. 10.

applied to a two and a two-and-a-half brick opening respectively. As will be seen, this principle of panelling may be applied to any length; although it requires care and methodical working out for correct brick treatment in the matter of breaking vertical joints. Any type of moulded brick suitable for such angle positions may, of course, be



Pair octagonal pattern, in colour relief; and Quirk.



Raised and Quirk, Colouring.

FIG. 11.

adapted to this work, besides the splay or any of those shown. Fig. 11 illustrates the use of the same brick in other methods of panelling. Showing the effects obtained by colour relief, sunk, and raised and sunk coursing. The bull-nosed, convex, and concave bricks, adapted to these positions, afford a more ornamental, and, therefore, pleasing, relief in this class of work, as will be seen on reference to Figs. 12 and 13. A great con-

sideration in favour of the splay brick for this ornamental work is its adaptability to the interior bonding of the wall, so far as it is necessary for such bricks to be let in. With moulded bricks built into a wall, their ends showing in this manner on the face for ornamental purposes, the customary clean, perfect jointing is, of course, impossible without a good deal of expense, either by

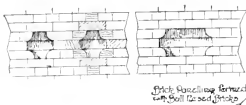


FIG. 12.

rough rubbing or having a reverse brick to fit. It is just possible a ready-made moulded brick might occasionally be found to answer this purpose, and suit the position better than adapting the splay brick. As shown by detail in the last illustration, the joint is raked out and pointed with coloured cement putty to match the ground, the cement being tinted with brickdust, ochre, or, in the event of dark colours, ash, to obtain correct tone. Fig. 14 shows the use of small, sunk, or patterned panels, as illustrated above, when arranged in systematic and symmetrical groups to form a still larger central or inter-



FIG. 13.

mediate pattern. Fig. 15 also illustrates how a little raised and sunk ornament so applied can be varied and massed for a central feature, such as a gable or other positions, for instance, on a line of ornament. Fig. 16 is again an other departure in this style, the two diagonal cross reliefs being formed somewhat on the principle of herringbone brickwork. The centre one, although an innovation in the use of upright bricks, forms a strong relief up in the wall face. Such features could be easily arranged in the inter half brick facing to a wall of sufficient thickness to admit of their use, with out really

similar figures, by variation of the band. This is, apparently—perhaps to the casual observer—an exceedingly slight point, scarcely worthy of note. However, though apparently slight, it is one worthy of particular attention. It is by such variations as these that the customary cast iron, mechanical, machine-made appearance conveyed by the majority of regular, uniformly laid modern brickwork may be broken up. Methods of inequality, in alternation, are required to effect this; the harsh, hard air of complete uniformity is so dispelled, introducing the spirit of picturesque. These points are well worthy of consideration, and should be studied out

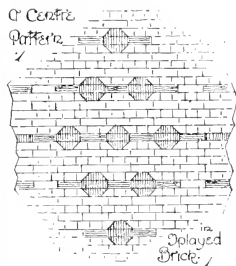


FIG. 14.

more in detail with regard to other examples illustrated in this work when actually applied. Fig. 15 illustrates a slightly more elaborate although not difficult, piece of work, on somewhat similar lines to the two former figures. It is also formed with splayed and three- or four pointed coping bricks, there not being any cutting required at all, although such hardly appears to be the case at first glance, with an apparently complicated piece of work. The various dimensions figured upon

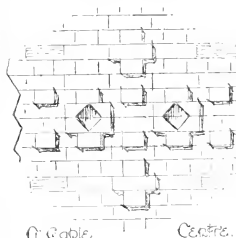


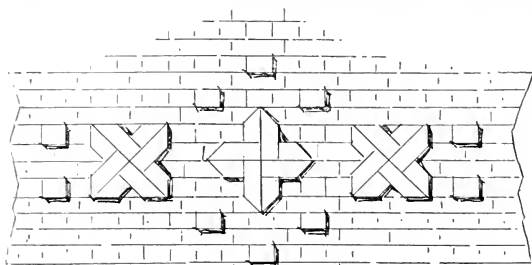
FIG. 15.

the sketch are quite self-explanatory with regard to this point. A correct, star-shaped ornament can be further formed by cutting away to the dotted lines shown by the upper left hand portion of this figure, or by cutting a brick diagonally, as shown in Fig. 19, and backing together the pieces so obtained. The latter method, though, involves considerable labour in cutting, not merely the points of angle, but grounds as well, which also have to be considered.

Yet another position in which the moulded brick may very often be satisfactorily used—the formation of bosses as illustrated by Fig. 20. It will be seen that these involve running a wider centre band in the coursing, formed by bricks on edge, giving a 4 in. face. The effect obtained, breaking up the uniformity of the coursing, forms a good variation towards the picturesque principles previously alluded to. A slightly more refined effect could be produced for some purposes by cutting down the moulded bricks

being at all unsound constructionally, any more than the rest of the work. These patterns are readily formed by means of the splay brick and pointed coping.

The two illustrations on Fig. 17 show different methods of bonding and construction for the upright cross—shown in the preceding example—in the ordinary straight coursing of wall construction. They also illustrate how different effects may be obtained even in



Or Centrepiece
Brick is Played

Fig. 16.

forms and, as the coursing width, if preferred, so as not to interfere with the regularity of the courses. The centre of the bosses may be easily fitted with a bat, either

although the latter are usually of a somewhat too cast iron or ornate character. On this figure the boss set on the diagonal has the angles filled in with the triangular bricks previously described. The ends are shown with

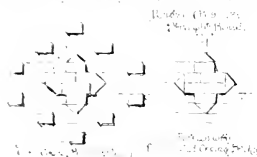


Fig. 17.

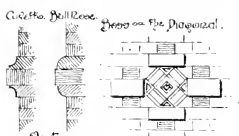


Fig. 20

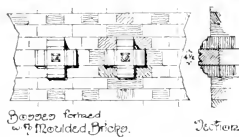


Fig. 19.

left plain, or with some slight carved relief, as indicated; introduced such would not be an expensive item. An ornamental tile can also be set in the centre, if preferred.

a small cut out panel, throwing the centre into stronger relief; this might be alternated with plain ends. Beyond the bat required for centrepiece there would be no cutting necessary here again.

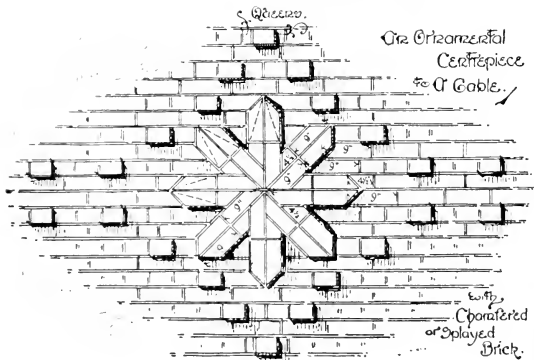


Fig. 18.

In the study of materials and their application it should be one of the first duties of the architect to find out what can be done with them. Utilising such individual materials in an advanced manner for ornamental purposes, when the nature of the work, even if only by moderate financial possibilities, admit of so doing. Not to obtain cheap stereotyped ornamentation by means of, and the introduction of, other and foreign materials to that in which he may be primarily working for the time being.

W. G. KERBY, Architect.

NOTES ON SOME PRINCIPLES OF PROFESSIONAL PRACTICE, AND SUGGESTIONS FOR A CODE OF ETHICS.*

By MR. C. McARTHUR BUTLER, F.C.I.S., Secretary of the Society.

For some time the Council have had under consideration the question of drafting a Code of Ethics relating to matters of professional etiquette in the architectural profession, and it was thought the importance of the subject warranted it being brought before the members with the view of eliciting opinions thereon, and, if possible, of formulating some basis on which further action might be taken by Council of the Society. The honour of opening the discussion was placed in my hands, and in going into the matter I found that the information then in my possession regarding the question in relation to professions generally was inadequate to enable me to deal usefully with the subject, and therefore, as a first step, I approached some fifty societies connected chiefly with architecture, engineering, and the allied professions at home and abroad, but including also a few institutions representative of other callings, and I desire, in the first place, to acknowledge the very kind way in which the secretaries of the institutions concerned most freely and promptly gave me the information I sought. I make no claim to originality of ideas or methods in introducing the subject, my efforts having mainly been directed to collecting and collating statistics and details; but if I am unable to place any fresh information before you, yet I hope to focus your attention in such a way as will elicit your criticisms and suggestions. I propose, in the first instance, to make a brief reference to the practice and custom prevailing in other professions, then to consider what is being done by architectural bodies, subsequently making a reference to some of the main principles which it appears to me should govern architectural practice, finishing with some suggestions for procedure, and for the basis of a Schedule of Practice and a Code of Ethics, dwelling, if time permits, more particularly on those points on which a difference of opinion may be likely to exist, and which therefore best lend themselves to discussion and the interchange of ideas.

CUSTOM IN OTHER PROFESSIONS.

I need only refer in passing to the professional etiquette prevailing in such professions as those of law and medicine, the Code applying to the latter being probably one of the most stringent, so much so that from a perusal of letters in the public Press, one is led to think that the line may sometimes be drawn to an extent which might appear to amount to an injustice in certain cases. In these professions, as well as in others possessing similar statutory powers, the existence and power of enforcement of the regulations which they adopt, tend, in my opinion, to create and maintain a high standard among their practitioners, and a corresponding standing in the eye of the public, seeing that any serious breach of professional etiquette is followed by the offender being deprived of further opportunities of practising; whereas, in professions having no legal standing, the offending member may be struck off the roll of the society to which he belongs, but that does not, at present, prevent him carrying on his practice, and is not, in the present condition of these professions, so drastic a punishment or deterrent

* A paper read before the Society of Architects, April 11, 1912.

as it is in the case of others. Among the numerous institutions representing the engineering, surveying, and allied professions in the United Kingdom, the only one, so far as I am aware, which has a Code of Ethics as well as by-laws, is the Institution of Civil Engineers, whose procedure in this respect is being closely followed by the Institution of Electrical Engineers, and by the newly-formed Association of Consulting Engineers. I understand that the American engineering institutes adopt similar methods. Other institutions and societies, such as those representing the interests of gas, mechanical, mining, marine, and sanitary engineering and surveying have at present no Code of Ethics, though in one or two cases the matter is under consideration. Most of them are content with retaining power under their by-laws dealing with any matters of professional practice affecting their own members. The opinion has been expressed that in some cases, such, for instance, where an institution is called upon to act in a judicial capacity in dealing with complaints regarding professional etiquette or misconduct, a Code might limit and hamper that institution in the performance of these duties, but the general feeling appears to be in favour of a Code.

THE ATTITUDE OF ARCHITECTURAL SOCIETIES.

We will now consider the custom in regard to architectural societies, noting first the Central and Continental practice. The American Institute of Architects offers to its members advice relating to the principles of professional practice, and puts forward a canon of ethics. The architectural institutions of Australia are co-operating in compiling a Code, while the one issued by the Central Society of French Architects has, I understand, been adopted by the French architectural societies. In South Africa, similar measures are being adopted by the various associations of architects, following the successful efforts which have been made in that country in regard to the registration of architects, a matter in which the Society of Architects, through its South African branch, played no inconsiderable part. In the case of the Royal Architectural Institute of Canada and other associations of architects, which are rapidly springing up in that progressive Dominion, have each their Code of Ethics, administered in most instances, I believe, under an Act of Parliament. In this, as in some other matters such as registration, the societies at home are content to follow where they ought to lead. Let us see what is being done in regard to this subject by these societies. Architecture is one of the few, if not the only one, of the great professions, the practice of which at home is not regulated by Act of Parliament, and probably it is the only one which is split up into so many institutions and societies, all having very nearly the same general aim. There are, for instance, in London, the Royal Institute of British Architects, the Society of Architects, and the Architectural Association, and in the provinces there are seventeen architectural societies allied to the Royal Institute, besides several at present unattached, and others in course of formation. All these societies have by-laws which enable them to act with effect against their members, and, in most cases, a member on joining has to sign a declaration against illicit commissions as well as an undertaking to keep the regulations. The allied societies, as one would expect, are practically in every case governed by the general practice of the R. I. B. A. as contained in the resolutions published in their Kalendar. These relate to the signing of buildings, and display of name by architects, the making known to the client of the architect's interest in materials or devices used on buildings, the question of supplanting other architects, and the payment for the quantities by the client (a matter dealt with in the Schedule of Charges), and also include the recent regulation relating to participation in architectural competitions.

THE EFFECT ON THE PROFESSION.

Thus we find the architectural profession as a whole at present without any generally and publicly recognised schedule of the principles to be observed in practice, with

no publicly recognised competition regulations, no publicly recognised scale of charges, and no publicly recognised penal Code; the regulations which are at present in force, excepting the one relating to competitions, being more in the nature of expressions of opinion, and relying upon custom for their enforcement, so far, at any rate, as they relate to unattached architects. Each member of the profession may act his own standard, and, in a sense, is under no obligation, which is that implied in his voluntary obligation in respect of the rules of any professional body to which he may belong, which are usually confined, as previously stated, to a declaration against illicit commissions (now probably rendered unnecessary by Act of Parliament), and an undertaking to keep the rules, the most important of which, in the opinion of every member concerned, is probably that relating to the payment of dues. In the rare cases, if any, where action has been taken by an institution not acting under statutory powers against a member for unprofessional conduct, removal from the roll of such institution on this ground, so far as the public or even the profession is concerned, is thus immediately connected with the case is concerned, has no more effect than if such removal was due to the relatively milder breach of the rules relating to the payment of the fees, seeing that the reason of the removal of the offender from the register is not made public, nor is he thereby debarred from continuing to practise. The unattached architect, whose profession beyond those immediately connected, and is under no control within the limits of professional matters.

SUGGESTIONS FOR A REMEDY.

This state of things can be remedied to some extent, and at present, so far as architectural societies are concerned, by the universal adoption by them of a Schedule of Principles and a Penal Code; but the unattached architect still remains uncontrolled, and, in my opinion, the only effective way of dealing with the whole matter is by statutory enactment, such as would be provided under a Registration Act. It is desirable under the circumstances, that a Schedule of Practice and a Code of Ethics should be instituted for the architectural profession, and, if so, on what basis should the latter be drafted, bearing in mind the fact that architectural societies reserve to themselves power to regulate, if only to some limited extent, and on certain points, the conduct of their members, and that it would appear that by laying down wider regulations they might possibly be hampered when dealing in a judicial capacity with these matters? In my opinion, the desirability in principle for a Schedule of Principles of Practice, and a Code of Ethics, is admitted, and that what is good for the societies concerned may be held to be good for the profession as a whole. Here, however, we are faced at once with the difficulty already referred to of dealing with that considerable body of architects outside any architectural society, who possibly could not be expected, and certainly could not be obliged, to adhere to any general schedule or Code, nor against whom could such a Code be enforced, in the absence of a controlling body representing the whole of the profession and vested with statutory powers.

A BOARD OF PROFESSIONAL CONTROL.

In the absence of, or in the anticipation of, such a controlling body as would be constituted under a Registration Act, I suggest the immediate formation by agreement between the architectural societies, of a Board of Professional Control, representing every architectural society in the United Kingdom in such proportion as may be arranged. This Board would have no power to interfere in the domestic policy or procedure of the societies concerned, but would act after due deliberation, with the weight of combined authority, on any questions of public or professional interests, and might also act as an appeal or advice court if required to do so by any architectural society in enforcing any question affecting its particular society. By this means, pressure could be brought to bear both on public bodies and members of the profession much

more efficiently than under the present system, while it would be very difficult and highly undesirable for even the unattached architect to ignore the fiat of a body so constituted; indeed, in my opinion, one effect of the formation of such a body would be to encourage those outside to come into one or other of the societies. In other words, there would be unity of action and cohesion when there now exists weakness and impotency, and as, in my opinion, everything points to the fact that the present system under a Registration Act, I think we may well, in the meantime, lay down certain principles of practice, and be prepared with a Code of Ethics acceptable to the various societies, with a view to general adoption now, and their incorporation in an Act of Parliament in due time. In the course of my inquiries, I have found that considerable interest is being taken in the suggestion among architectural societies, several of whom are prepared to consider any proposition; therefore I think there is every reason why the Society of Architects should persevere in this matter, and endeavour, if possible, in conjunction with other interested bodies, to see the matter carried into practical effect.

ARCHITECTS AND THE PUBLIC.

I recognise the fact that just as the possession of a Royal Charter or of statutory powers, which confer dignity and responsibility, may at the same time, to some extent, limit and restrict the operations of the body which possesses them, leaving the less favoured in this respect more free to develop and expand, so to lay down too severe a Schedule of Practice and Code of Ethics might possibly tend to restrict the freedom of professional practice, and the progress of the art of architecture; but, on the other hand, the want of some reasonable and definite standard, or the absence of any general and agreed pronouncement made under the combined authority of the various societies on behalf of the profession, accounts, in my opinion, for the fact that not only is the profession divided against itself in certain matters of policy, and its members distrustful of one another, but the public and public bodies are led to imagine that the standard of architectural etiquette, if it exists at all, is so low that architects may be called upon to tender for work, to accept public appointments or private work on inadequate terms, to enter into competitions arranged on undesirable lines, and generally to conform without protest in matters and to conditions which would not for a moment be entertained by members of any other profession. The relative position which an architect holds in the opinion of the public is often shown on occasions such as the public opening of a building, when the architect is frequently the only person connected with the undertaking who is not mentioned in the report of the proceedings, nor does the profession get more than a very scanty share of the titular honours so freely bestowed in other directions.

ESSENTIAL QUALIFICATIONS FOR THE PRACTICE OF ARCHITECTURE.

I will assume, therefore, for the moment that we agree in principle, and that we can get on with the form which such a Schedule of Practice and a Code of Ethics should take, and it appears to me that as the profession is at present constituted, and pending statutory registration, what we should aim at should be the establishment of a body as has been indicated, and the laying down of certain principles of professional practice, and from these to draw up certain rules, the violation of which would constitute unprofessional conduct. From a perusal and comparison of the various Codes in use amongst architectural societies at home and abroad, I have found that, in the main, they are all in regard to setting out the principles of professional practice I consider that the circular issued by the American Institute of Architects which offers advice relating to professional practice can hardly be improved upon in seeking to maintain a high standard of practice and conduct on the part of members of the profession, as a safeguard against important financial, technical, and aesthetic interests entrusted to them. The profession

WHICH HE IS INTERESTED IN ANY OTHER CAPACITY.

8. TO ACCEPT THE COMMISSION TO DO THE WORK EITHER PERSONALLY OR BY PARTNERSHIP, FOR WHICH A COMPETITION HAS BEEN INSTITUTED IF HE HAS ACTED IN AN ADVISORY CAPACITY EITHER IN DRAWING UP THE PROGRAMME OR IN MAKING THE AWARD.

9. TO INJURE FALSELY OR MALICIOUSLY, DIRECTLY OR INDIRECTLY, THE PROFESSIONAL REPUTATION, PROSPECTS, OR BUSINESS OF A FELLOW ARCHITECT.

10. TO UNDERTAKE A COMMISSION WHILE THE CLAIM FOR COMPENSATION OR DAMAGE, OR BOTH, OF AN ARCHITECT PREVIOUSLY EMPLOYED, AND WHOSE CLAIM HAS BEEN REFERRED TO ARBITRATION, OR ISSUE HAS BEEN JOINED AT LAW, OR UNLESS THE ARCHITECT PREVIOUSLY EMPLOYED NEGLECTS TO PRESS HIS CLAIM LEGALLY.

11. TO ATTEMPT TO SECURE A FELLOW ARCHITECT AFTER HIS DEATH, TO HAVE BEEN TAKEN TOWARD HIS EMPLOYMENT.

12. TO COMPETE KNOWINGLY WITH A FELLOW ARCHITECT FOR EMPLOYMENT ON THE BASIS OF PROFESSIONAL CHARGES.

13. TO CRITICISE IN PUBLIC PRINT THE PROFESSIONAL WORK OR REPUTATION OF ANOTHER EXCEPT OVER HIS OWN NAME.

14. TO DEViate FROM THE SCALE OF CHARGES WITHOUT PERMISSION OF THE BOARD OF PROFESSIONAL CONTROL.

GENERAL OBSERVATIONS.

There are five points in particular arising out of the proposed Schedule of Practice and Code of Ethics to which I would call attention: (a) The Ownership of Drawings, (b) Scale of Charges, (c) Advertising, (d) Competitions, (e) Architectural Societies, (f) Public Authorities. In regard to (a), the Ownership of Drawings. The fact that an architect can be called upon to deliver up to a client all drawings and documents on completion of the work and payment of fees, in the absence of any express agreement to the contrary, renders it desirable, in my opinion, to consider the question of endeavouring to get the decision in "Gibson v. Pease" reversed, and in the meantime, in works of any importance, for the architect to arrange procedure with the client previously. In regard to (b), the Scale of Charges. The fact that the only authority and recognition which this scale has is based on custom, renders it desirable, in my opinion, from this point of view, to hasten an Act of Parliament under which such a scale would be legalised. On the question of the scale generally, I am of opinion that in the architectural profession payment by commission on the cost of the building is wrong in principle, if not immoral, as it is exceedingly difficult to get away from the fact that the architect benefits materially in proportion to the amount spent by the client, though he may and does, in the interest of his client, make every endeavour to keep within the limit laid down. The architect should not, in my opinion, be placed in a position where it may be inferred that his personal interests are likely to clash with those of his client. Again, a minimum scale is not unlikely to be considered or to become a matter of course. I have no practical proposal to make at present for the redrafting of the scale as it now exists; but it has been suggested to me, why have a scale at all? Why should not architects, like other artists, adjust their charges in accordance with what they can command for their services? In regard to (c), Advertising. It all depends on the interpretation and definition of the term, which I take it is intended to mean when applied to architects, that they should not employ commercial methods of making themselves and their work known to the public, that is to say, by direct advertising. As to indirect advertising, an architect, like any other professional man with any considerable practice, and who wishes to avoid it. His name is constantly brought before the public in the professional journals and by the technical papers, by the books or papers he publishes, to say nothing of his name and address on announcements on sites for public buildings, for which

publicity, if he sought it through the usual channels, he would have, in many cases, to pay a heavy charge. One sees in Colonial papers architects' announcements side by side with those of engineers, and a Canadian journal gives publicity to the fact that an architect, whose name and address are given, is holding the annual exhibition of his designs, and demonstrating the possibilities of various materials, and complete schemes of decoration for various purposes. At home the architect who wishes to advertise must do so openly, but must rely on the kind offices of those who, presumably with his sanction, on theatre programmes or in displayed advertisements in newspapers, call attention to the fact that "this magnificent new theatre was designed by the eminent architect, Mr. Jones," or that "this building has been designed by the well-known architects, Messrs. Smith and Robinson, who were responsible for the Hotel, etc." The personal interview, or inspired article, illustrated or otherwise, harmless in itself, is but another form of advertisement, and one which also commends itself to the softer or shall we say, the more easily swayed, the shades of the public patronage of architects. In regard to (d), Competitions. It has been urged upon me with considerable force and frequency by members of the Royal Institute, as well as others, that the restrictions very properly laid down by the R.I.B.A., and endorsed by the Society, should not altogether apply to small local or limited competitions. The reason, in this instance, that an assessor is not always appointed is not invariably that the persons concerned do not agree in principle to such a course, but is sometimes due to the financial margin being so small that it will not justify the considerable expense involved in the appointment of an assessor, and if the local architects concerned are satisfied and willing to compete on the terms laid down by the promoters, it is suggested they should not be unduly penalised, under the present conditions prevailing in the profession, where, if an architect is loyal to his society and refrains from competing, he leaves the field open to others who, for reasons previously stated, are under no control or obligation to regard to (e), Architectural Societies. One has to allow for human nature, which in this case usually takes the form of joining a society for personal benefit and making use of it for one's personal ends, though I am bound to say from experience that the other point of view has occasionally prevailed, the possibility of there being any other than the selfish motive in having oneself elected to the person concerned. I may here say that in the Dominion of Canada membership in local associations of architects is compulsory by law on those who desire to use the title of architect. In regard to (f), Public Authorities. The architect sometimes finds himself hampered with the requirements of the official building regulations, and in the official whose duty it is to administer them; but his efforts will, of course, be directed to complying with the requirements of lawfully constituted authority and to find a remedy for his grievances (if any), not in endeavouring to evade, but to amend, those regulations which appear to him to be irksome and unnecessary. There are, no doubt, many other points on which questions will be raised—indeed, several might well form subjects for separate discussion. I have only very briefly dealt with a few, but I have achieved my object if I have interested you in the subject and shown that the main question raised—viz., the desirability of some unity of purpose and action in formulating a definite standard of professional practice and etiquette, and the valuable assistance which might be given in this direction by the various architectural societies co-operating, while retaining their separate entities, is one worthy of serious consideration. It only remains for me to say that the opinions I have expressed are personal to myself, and are put forward for the purpose of eliciting criticisms or suggestions, and only to the extent to which they may subsequently be endorsed by those concerned must they be taken as representing the views of the Council or of the Society.

"BUILDING NEWS" DESIGNING CLUB.

A STONE BRIDGE AND TOLLBOOTH TO A STADIUM.

Stadium grounds have come to stay, and the need of some more suitable approaches to such grounds other than the conventional extravaganzas hitherto associated with exhibition displays of this character suggested the subject for a competition to be held by the members of the Designing Club. We publish the result of the contest to day. We are aware that the project was in some ways an ideal one, combining as it does a three-spanned bridge, as well as the tollhouse, to constitute an approach to a stadium.

"Five Towns" seems on the whole, to have best realised our intentions, though "Why Not?" sends a very quiet and pretty scheme which runs him rather hard. The third design was not so easy to settle upon; indeed, we have had considerable hesitation in awarding the position to "Liver," "Purgh Wallis," "Black Diamond," "Veritas," "Never-do-well," "Jorvic," and "Veritas" are the five schemes also possessing claims, though, however, are not over the line of the truth, more precisely, our choice for the third place was really arrived at by selecting the one we perhaps disliked least instead of premiating something which claimed our admiration most.

The first place is won by "Five Towns," because his sturdy-looking tower adds an importance more commensurate with a big place of assembly, and as looking equal to a busy recreation enterprise. Of course, the projecting shrubberies and posts with chains (which, however, are not accessories to the block plan) are out of character with the pushing and incidental conduct of a pleasure-seeking crowd. They suggest, in contrast to that, the quiet retirement of a cemetery entrance or some private park environment. The bridge starts more fairly, so to speak, with this gateway than in "Why Not's" plan, and the house also is more compact. We are not so sure that the repetition of the front archway on the back of the tower side of the tower is an advantage. A pair of small square windows instead of one central light would have added solidity of effect, and so might look more restful, besides being broader in treatment. Light is not a question in this case, as for that end the front and rear arches amply suffice. The gates certainly would be inadequate as here shown to regulate the entrance; in fact, they could only work efficiently as a series of small gates were fitted up beyond the pay-office for the issue of tickets. "Liver" is better in this regard than either "Five Towns" or "Why Not." The clock-room, on the first floor, in "Five Towns' plan is not needed, as ample space is provided in the tower higher up for the little works of so ordinary a timepiece.

"Why Not" we have already mentioned favourably. The strong shadows on the semi-circular, bastion-like towers, rather indicate rectangular, banded, roofs instead of conical ones, as shown in the view. The gateway design, in the main, is a composition seems too undemonstrative for the purpose in mind, and the towers do not grow naturally out of the plan, as they ought to do as a justification for their employment. The money-taker's hatch window, at first sight, does appear to justify its position in the tower by its being the only facility for purchase there is before reaching the gates; but to let people to send out in the rain and wind while transacting so important a preliminary and necessary bit of business is a very bad arrangement, and, besides, clammers if the hatchway would soon get out of control. We do not like the lavatory and water closet building situated on the T-shaped house on the right, as well as being particularly conspicuous, and as missing a bathroom. The elevation on the west flank of the building, with the scaffolding pointed to the bird's-eye starting on a night look awkward, has been suggested to be a jump over with at

having paid the gate money. The block plan is so far incomplete that we are left to conjecture how the entrance is reached at the side. "F.V. Towns" shows gardens, and claims a deserved place there. "W. No. 1" is set out on the environment, as he said I have done, and consequently, the perspective leaves the house exposed all round. The geometrically set out yard, with steps of its own design to the river edge, looks rather over-elaborate and too ambitious for a toll-keeper's residence, such as this.

"Laver" puts his pass gate advantageously at the rear, but in addition to a party who would be required to close up the archway when not at use, otherwise tramps and others would infest the place, particularly at night-time, and on grand occasions a row might result by over-crowding. The elevations are unimpressive, and it they do not quite convey an exact appreciation of the purpose of the building, the quiet smile of the facade is quiet, while the drawings are finely delineated. We do not like the flat, so-called "Tudor" arch, and it is not well proportioned even for its kind. The bridge likewise is not very happily set out, with the same type of archway in the middle. No attempt is made to deal with the frontage to the river beyond the gatehouse on either side, and the view shows a rough, undisturbed rubbish-shoot sort of casual ending, with docks and weeds growing in wild profusion, which is most unsatisfactory, and not up to date as a town-planning project.

"Barth Wall" in some respects recognises that a gateway is not an ordinary domestic piece of building, as some members seem to think; but he is not so far from the mark. In his behalf we can scarcely add much praise, because he cuts up his composition so badly and crowns the apex of his bridge parapets with corbelled seat shelters, just where such things are not wanted. To get the public in and out of the stadium is the problem in view, not to encourage lingering on the bridge, or sky-larking in the archway. "Barth Wall's" plan is compact and ingenious, though the entrance directly out of the street into the living room is not quite up to the standard of such a residence. The ticket office would need more light than that obtainable from the money-latch within the archway, as shown.

"Black Diamond" sends a ponderously heavy brick tower, flanked at the angles with log barrels (being flat tops). This sort of building, done as here, displays a vulgar sense of scale. "Barth Wall's" plan is compact and ingenious, though the entrance directly out of the street into the living room is not quite up to the standard of such a residence. The ticket office would need more light than that obtainable from the money-latch within the archway, as shown.

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big merry-mayn's premises, with the manager's cottage standing well out in front of the gates. The ticket office is not badly managed, and the house is rather nicely set out. The entrance is thought of as crossing seriously into the public highway, which is not a recommendation.

"Jorrie" has grasped more the notion of a big, masterful gateway; but his proportions are lacking in congruity, while his living room or plan is much too large and out of scale with a lodge for this toll-keeper. The gate arch is vastly too tall, looking worse in this respect in the perspective than in the geometrical drawings. The trees resemble a clock drawn in freehand plays havoc with a true shape of a circle. A pair of box pews would have got over that difficulty; but perhaps freehand clocks have an advantage, as "Jorrie" discards the ruling pen save for the scale and lines below his lettering, when he employs it right manfully, with looking good. In contrast to the nervous delineation of his architecture, which suffers accordingly.

"St. Peter" ought to avoid his evident faults, which seem due to an aim after quaintness, as expressed, for example, by the circular attachments at the corners of his gatehouse, ending at their tops with quaint battlements in the springing of the gables. The gates are located in the middle of the depth of the through-way, so they would probably serve their purpose. The big, broad chimney-breast to the front of the cottage, with the sort of bay window on the same face, is a good feature. The plan is ingenious, and a pocket in the cross wall allows the gate to be set well back from the way when the stadium is being cleared of the assembly. "St. Peter" is a new member, who ought to try again and again. He evinces sufficient merit to justify our expectation of better things from him than this.

"Apex" is a long way from the top at present, and his old-fashioned, thin looking frontage is not unlike a mill-crozier in a park. All that a man like this, such as we specified. The ticket office occupies a little tower, and a corresponding erection, also flanking the gateway, is devoted to garden-tops. Presumably, if people can risk the bad weather by standing or sitting out in an open stadium to witness displays of all kinds, they ought not to be too mindful of having to take tickets and pay their entrance money out in the road. "Apex" insists upon their doing, "midst motor cars, as the perspective suggests might occur. We do not agree, however, that this is a sufficient provision. The bridge is quiet enough in design and so is the lodge, done in a Tudor style, with a four-centred archway and fitted with poor-looking gates. The scheme is better adapted to a private property.

"Britten" designs for a nation of shop-keepers in a slashing sort of modern manner, without much appreciation of architectural fitness or refinement. He starts his big brick arch off piers, without leaving room for proper springers, in a muddling sort of way which the alternating stone bands to the top of the arch render more conspicuous. The over-arching roofs to the clock both sides of the building suggest a railway station, and the bridge illustrates what most to avoid. Nevertheless, "Britten" draws with a crispness and without hesitation in a slapdash style, not without effect. His perspective is too roughly handled to meet with praise. The plans are indifferent also.

"Diogenes" must give up pumping and nervous-looking buttresses at the angles of cottage buildings, where they are not needed and only look piffing. The gateway is singular, being marked by dwarf piers dividing the entrance into a carriage space, with footway openings at the sides. The cottage is a good one, so far as plan is concerned, and the bridge will pass muster; but the scheme has little to do with a stadium project.

"D. S. C." has bold, V-shaped bastion projections, one for the ticket bureau and the other for a living room, both flanking an ugly-shaped archway. A pair of chimneys rise

above the projecting angle of these projections, and occur on either side of a stepped gable, where the clock is located in the middle. "Scott" is ingenious, and strikes out on his own, which is refreshing; but his originality runs riot for want of study of the best examples of fine architectural composition. The result is a jumble, and the plan follows suit, as nearly always happens. The view poorly represents this design, and the battlemented wall enclosing the toll-keeper's garden signifies an entrance to a rural settlement rather than a pleasure ground. The sheet of paper as used by "Scott" ignores the rules.

"Another" is next and thin, with embattled towers for an earth-closet and a coal-pole, both octagonal in form and attached to the kitchen. Why the doorways to these unimportant but necessary accessories should command so fine a view up the stream for every passer-by to gaze into privacy is a question which "Another" seems to have forgotten, and why a circular staircase should be embodied in a rectilinear building is another query which the author has not solved properly. He gives no elevations of his bridge. When the gates are open they shut off the ticket office hatchways; but this happens only after the performance is over and the people are coming out. As a matter of fact, "Another" is one of the few who realised properly the object of the gates in regard to the ticket place when people are going in.

"Country Yodel" has square pavilions at the end of his block, and puts saucer domes on top of them, with flagstaffs on high. The design is most indifferent, and suggests water-gate, with its ramping buttresses and hipped roof over, scarcely less the idea. There is no notion indicated as to how the group fits in with the river-banks, having a road skirting the stream north of the town.

"Bournemouth Queen" sends ink looking drawings of a bridge, with a toll-house attached, looking more like a small tavern than anything else. It might serve as an approach to a stadium, or a school; but the gateway is a failure. The plan is compact and ingenious, though the entrance directly out of the street into the living room is not quite up to the standard of such a residence. The ticket office would need more light than that obtainable from the money-latch within the archway, as shown.

"Wigg" ignores the rules as to size of paper. His cottage and gatehouse are isolated from the bridge, and so far as the black-plan shows, the public can reach the bridge without going through the archway. The clock, located in the middle of the gates is the only one that is not a failure. The plan is compact and ingenious, though the entrance directly out of the street into the living room is not quite up to the standard of such a residence. The ticket office would need more light than that obtainable from the money-latch within the archway, as shown.

The following is a copy of the instructions issued for the competitors: A Stone Bridge and a Tollhouse, forming approach to a Stadium on the right bank of the river, the County of Devon. The site is flat, and the canal stream to be spanned by the bridge is 30ft. wide from bank to bank, each bank occupying a further 10ft. on either side of the water-course, the normal level of which is 6ft below the normal level of the roadway. The approach road up to the bridge will be reckoned to rise 1ft higher, and the roadway of the bridge itself will rise 1ft towards the centre of its length, so as to bisect head room over the water line below. The bridge will thus be 50ft. long, and to have three arches, the middle one to be 20ft. wide in its span, and tall enough to allow small river barges without sails and rowing boats to pass. The width of the bridge to be 15ft. in the clear between the 10ft. stone flanking or parapet walls, which may rake with the rise of the bridge to an easy gradient. The tollhouse to be on the town or approach side of the bridge. The stream runs east to west. The house may be attached to the bridge on the east side, or right hand; but as an alternative the lodge may take the form of an archway, with parts projecting east and west of the end of the bridge. The opening of the archway to be 12ft. in the clear, and fitted with gates of strong, plain pattern, capable of resisting a crowd on occasion. There must be three wickets in these gates—the central wicket for

admission and adjacent to a ticket office, the left-hand wicket for public exit. All three to be independent of each other, and to form part of the big gates, which are to open for occasional cart traffic to and from the stadium, or for clearing the stadium at the close of any meeting. The tollgate-house to provide living-room, small kitchen and scullery combined, and offices. Three bed rooms for keeper upstairs on first floor, but one of the three rooms may be on a second floor. Provide a small ticket-office as part of this lodge. The style of architecture to be Edwardian or Early Tudor adapted to stone, and stone-lated roof. The parapet walls of bridge to be 4 ft. above the roadway, which will need no side pathway. A clock may be

Hall, Whitechapel, Bedford College, and Red Cross Hall (Southwark). Parochial buildings at St. James the Less, Rotherhithe, Green, and St. Martin's, Haverstock Hill. He also restored the churches of St. James the Less and St. Martin, and many others, and Wesley's Chapel, City road, and built many Wesleyan chapels, of which his favourite was Holly Park Chapel, Crouch Hill, to which he added the spire the year before last.

Many of his works have been illustrated in the *Builder*, and, indeed, he was a constant reader, and, indeed, spent most of his leisure in reading again our back numbers, which he had had bound since 1870. He was happy and pleasant to the

of fretwork for arches, vestibules, etc., which clearly show the excellent effects which can be obtained with this class of work at comparatively small cost. We may add that Messrs. Jennings and Co. supply a great variety of general builders' goods, of best quality at lowest prices. We notice, for instance, what seems a really efficient geyser (the firm's own patent) made complete in copper for £3 5s.

EXCAVATIONS AT LESNES ABBEY, KENT.

The current issue of the *Transactions of the Pauline Ecclesiological Society*, constituting Part I. of Vol. VII. is, as usual, excellently edited and freely and well illustrated. It is published for the society by Messrs. Harrison and Sons, 15, Pall Mall, at 6s. net.

There are two contributions, relating to City churches by Wren, by Mr. Philip Norman, LL.D., treasurer of the Society of Antiquaries—those of Christ Church, Newgate-street (one of the architect's larger edifices, and St. Benet's, Paul's Ward. In the former case, the walls and columns are built on the actual sites and foundations of the Mediaeval choir; and the same is probably the case at St. Benet's, though here Dr. Norman speaks with less decision. Mr. Thomas Garratt, A.R.I.B.A., describes in detail the Chapel of St. Mary Magdalene, Kingston-on-Thames, built by Edward Lovelock late in the 15th century, and rebuilt and re-endowed by his son John, a Mayor of London. A quarter of a century ago the chapel, which contains many original features and details, was threatened with destruction, but was repaired at a cost borne by members of the Surrey Archaeological Society, and under the direction of Mr. A. J. Stiles, F.R.I.B.A. The principal feature of the *Transactions* is, however, an account by Mr. Alfred W. Clapham of the history and remains of

THE AUGUSTINIAN CHURCH OF LESNES, illustrated by a ground plan and by more than a dozen half-tone blocks from photographs, showing the interesting features discovered during the recent excavations.

The position of Lesnes Abbey, half way between Plumstead and Erith, says Mr. Clapham, must once have been pleasant enough. It commands an extensive prospect over the marshes, the river, and the low-lying Essex shore, and the ground that rises steeply behind is thickly covered with wood, the crest having an irregular and diversified outline, which is still unspoiled by building. The excavations (which had the pleasure of superintending) began there about sixteen months ago, by the energy and initiative of Mr. W. T. Vincent and the Woolwich Antiquarian Society, have now extended over the site of the church, chapter house, and parts of the infirmary, dormitory, and frater. The church lay, for no apparent reason, upon the south side of the cloister, as at the parent house of Holy Trinity Aldgate, and at the churches of St. Mary Over, Wingham, Cartmel, and a number of other Augustinian houses. No part of it was ever used for parochial purposes, and consequently only one fragment now remains above ground. Built, or at least set out, about 1178, the whole of the details yet remaining in situ are of the same date. The plan adopted was the typical Cistercian one of the arched nave, transepts with eastern chancel and a side-chapel, and when complete the church must have presented an appearance very similar to Kirkstall. The church was planned on an unusual scale; indeed, the dimensions of the nave, 140 ft. by 65 ft. 6 in., compare favourably with almost any other Augustinian church in the country. This building was eight bays long, and was entered by a very large door with recessed orders in the centre of the west front. The furnace used to melt down the roof-lead at the Dissolution, with a considerable quantity of the metal run in amongst the einders. Heavy sleeper walls ran from end to end of the nave, carrying the piers of the two arcades. No column bases were found, owing



THE LATE MR. ELIJAH HOOLE, F.R.I.B.A.

introduced as a feature. Scale 8 ft. to the inch. A general plan may be 16 ft. to the inch, but the larger scale must be used for the house and gateway plans. Two elevations and one section. The view to be taken looking towards the bridge from the town. The stadium need not be shown.

THE LATE MR. ELIJAH HOOLE.

Mr. Elijah Hoole, F.R.I.B.A., passed away suddenly on March 27, 1912, in his seventy-fifth year. He was a pupil of the late James Simpson, C.E. (at one time President of the Institution of Civil Engineers), whom he assisted in the design and construction of engineering buildings for the Chelsea, Lambeth, Cardiff, and other waterworks companies. Mr. Hoole commenced to practise as an architect in London in 1864. Among a large number of his works may be mentioned Messrs. Chubb and Sons' lock and safe factory, and the workmen's industrial dwelling, for which he won medals at the Health, Inventions, and Paris Exhibitions; at Whitechapel, Lambeth (Surrey Lodge); St. Pancras, Marylebone, Chelsea, Westminster, Peckham, Southwark, Bristol, Oxford, and many other places.

He was a close personal friend of Miss Octavia Hill, and built many of these dwellings for her and helped her in her work for more than forty years. He built mission churches at Naples, Cannstatt, Berlin, Kandy, Newfoundland, etc., and Lusanne College, the Morley Memorial College (Lambeth), the University Settlements (Toynbee

very last minute of his life, which was throughout one of those described by Young: "That life is long which answers life's great end."

GENERAL WOODWORK.

Sentimental considerations seldom influence the choice of building material; but it is not sentiment, but sound common sense, for a leading firm in any line which, thanks to past neglect, has felt the inroads of the foreign competitor, to stand or fall by its challenge to all users to test the prices and quality of its specialities by those of the foreigner, as Messrs. C. Jennings and Co., of Bristol, Cardiff, Leicester, and Portcathall have done.

That challenge has been fully justified, and there is absolutely no reason, Tariff Reform or no Tariff Reform, why foreign-made doors, windows, mouldings, and other joinery should be used by English architects and builders. The latest any firm that has proved this is entitled to is first consideration at the hands of their fellow-countrymen, and we are sure that every user who will send fivepence in stamps to Messrs. C. Jennings and Co., 552, Pennywell-road, Bristol, for their catalogue, just issued, of 264 pages, profusely illustrated, and yet of pocket-size, will buy British stuff in future. The variety of wood work the firm is capable of supplying is amply shown by the illustrations and prices, which range from cottage doors to elaborate work in best Austrian oak, teak, mahogany, and other woods. A special feature is a set of designs—some elaborate, others inexpensive

to the present ground being hardly a foot above the old floor level. Some two bays of the north aisle wall are, however, still standing, together with the great clapping buttress at the angle of the west front. Further east, against this wall, were found the bases of two piers carrying the arcade vault. The details are distinctly Transitional in character, the base moulding being of the "cold water" type, but resting on a square base, and having a small voluted spiral ornament at the angles. This ornament is somewhat uncommon, but may be seen at St. Cross, Winchester, Dunstable Priory, and elsewhere. It is used through the church at Gosnes, and seems to show that the whole building had risen to some height before the close of the 12th century. In the western bay of the north aisle a door opened into the outer parlor, forming the western professional approach from the cloister. The transept, like the nave, is unusually long. It measures 126ft. long by 26ft. wide. The corresponding dimensions at Southwick are 120ft. by 24ft. The transept is 116ft. by 26ft. All round the inside of the north transept ran a double plinth course, consisting of an ogee and chamfer. Internal plinths occur at Selby and Buildwas, but they are chamfered only. Of the four piers supporting the central tower, the two on the west have alone left remains, and of these some southern is the north pier, and when viewed the detail was perfectly fresh and clean cut. The respond of the nave arcade has unfortunately gone; but the plain ashlar facing the aisle remains, with the bases of the two great tower arches springing north and east. The eastern consists of a rectangular pier with a half column against each side, and a slender respond. The northern base is similar, but the half column is omitted, owing to the presence of the choir stalls against that side. On the eastern side of both arms of the transept originally projected three small chapels, divided by thick partition walls. Those on the south side have subsequently been removed, to make way for the Lady chapel, but those on the north still remain. The outer of the north has been completely cleared, and the base of the altar unobscured. In the east wall were found five recesses, one on either side, and one with a seat about a foot above the floor. They were probably used as seats by the celebrants. Under the partition wall (which is of later date than the original work) a small chapel, some 20 ft. long and apparently vaulted. These three chapels were vaulted, and a large number of ribs and courses were discovered. They are of the usual Transitional type, with a large half round, with a small round arch under each side, and a small round arch under the east end. The Presbytery, which was a fragment of the north wall, has been discovered. A north wall, which crosses the east end, revealed the eastern part of the wall, half round, and established the total length of the church as 240 ft., including the presbytery on the south. The choir, which was with it, ended the Lady chapel. It was oriented towards the east, and the choir, as appears from two Papal bulls, was completed in 1571. From one of these documents it is clear that the enlargement of the existing building was in progress, rather than the erection of an entirely new one. There was a pulpit, a small organ in the chapel, as payment of 84 lb. for services for the bellows was made in 1540 and 1541. Another interesting reference is to donations made and received in St. Mary's Chapel, which may be taken to refer to the parvise chapel in the east end. The chapel opened into the north transept, with a wooden screen across the entrance. It was rectangular, and about 60 ft. long by 16 ft. wide. The altar appears to have been placed from the east end, with a wooden screen behind it, and leaving a space of 11 ft. between it and the east wall. In this space a small sink, chamber, or tomb, or a small recess with tiles and a small door, was found in the north end; but there was no altar in the southern end. It was, however, a recess, and, as it is also a place of interest, it has been a place of interest.

over, and the only other suggestion having any sort of probability is that it had to do with the miraculous image of the Virgin. Various sunk chambers occur in parish churches in this position. Womersley in Surrey is a case in point—but in every instance they either are, or have been, roofed in. The Cloister Court, as has been said, adjoined the northern side of the nave. It was some 100 ft. from east to west, and rather more from north to south. Some portions of the arcade walls have been brought to light, and from the unusual thickness of that on the eastern side it may be inferred that this alley was vaulted. The doorway at the south-west angle of the cloister is the only one remaining. The threshold is a tomb slab of Purbeck reposed. Adjoining the north transept, and interposed between it and the chapter house, was a small apartment entered from the church, and probably used as a sacristy. The chapter house has been completely excavated. It was one of the earliest buildings completed in the 13th century, and appears to have been stone vaulted. A considerable number of shafts, and three stone caps have been found, the latter with Transitional foliage and square abaci. A central door opened from the cloister, recessed on each side in three orders, and round the walls ran a double bench, the lower being brought forward in the middle of the east end to form a desk for the abbot's seat. Some traces of the infirmary hall and parage have been recently uncovered, and the work here and on the site of the Dorter south vault is still in progress. The Frater flanked the cloister on the north. The lower part of the northern wall is still standing, and in Stewkley's time (1753), a range of eight large windows was in existence. A much damaged projection on the north side represents the staircase. The small windows lighting the staircase still remain, and the rake of the stairs themselves is also visible. No other building of the 13th century is now standing. The abbot's lodging stood on the site of the present farmhouse, and was only destroyed in 1844. It was a picturesque structure, the lower floor being of stone, and the upper half timber work. Portions of the foundation walls are still existing in the basement of the modern house. It contained a fine oak well staircase on the south side. The great corn-barn of the Abbey was standing as recently as 1860. It was a fine structure of its class. The brick and stone foundations still visible to the north-east of the barn indicate a building of eight bays, 18 ft. by 20 ft. The excavated outlying buildings are referred to in an interesting inventory of 1520 at the Record Office. The precinct wall practically skirted the existing rectory on the north and was entered by a second gate, known as the Upper Gatehouse, given as a residence to Richard Clement in 1521. Of the memorials of the dead found on the site of the Abbey, the most important is a cross-legged effigy in armor found on the site of the Lady chapel. The figure dates from c. 1220, and is carved in Reigate stone. When found, it was in several pieces, and the head is still missing. It bears considerable remains of an elaborate armor, the metal being represented by gilded gesso-work laid on the stone. The arms on the shield and surcoat are those of de Lucy, gules, three lucies or. Three slabs with incised for brasses were also found on the site of the church, two representing the arms of the de Lucys, and the third with a prebendal shield, and the inscription ABRAHAM LUCAS. In the chapter house was found a fine series of five coffin lids in Purbeck marble; two of these bear inscriptions recording the burials of "the good Abbot Ful" and Aveline, probably the daughter of Richard de Lucy. The other slabs have carved foliage and crosses in relief, but no inscriptions. Large quantities of the ancient work have come to light during the excavations, and exhibiting excellent examples of 12th, 13th, and 14th century work. In addition, a considerable number

and variety of encaustic paving-tiles have been discovered, many of them still in situ, and though none of them show any great originality, they nevertheless form an interesting series. Lastly, mention should be made of the fragments of stained glass found under the east window of the Lady chapel. Many of them are still transparent, and the largest piece displays the beautiful figure of a saint. The materials used in the construction of the Abbey walls appear to have been of three sorts only. The rubble consists of rag stone and chalk, and the ashlar and carved work of green and brown Reigate stone, probably from the Merstham quarries, so extensively used throughout the Middle Ages.

CHIPS.

Mr. Charles Smith (79), Hatherley, London-road, Reading, architect and surveyor, mayor of the borough 1874-5 and 1875-6, has left £20,481.

In the accounts of the Victoria Memorial at Calcutta, recently published, fees and commission to Sir William Emerson are put down on the expenditure side as amounting to just over 4½ lakhs.

The death occurred on Sunday week of Mr. W. E. Streethead, formerly assistant secretary of South Kensington Museum, but for the past quarter of a century a resident of Peterborough, where he had been living in retirement. He was eighty-seven years of age.

H. M. Consul-General at Tangier reports that the French Government has now granted a sum of 250,000 francs (£10,000) for completing the construction and fitting up of a Pasteur Institute at Tangier which was commenced some time ago, but was left unfinished through lack of funds.

The old established firm of civil engineers and contractors, Messrs. Ford and Macdonald, which has been known in Upper India for over 50 years, has been lately formed into a limited liability company under the title of Ford and Macdonald Limited. The shares are held privately, and none will be offered to the public.

The second annual New York Architecture and Engineering Exhibition, which was to have been held from March 25 to 30, will be held in conjunction with the Fair Exposition, October 2 to 12, constituting a complete cycle of construction and safety building equipment. In America, as here, they are tiring of too many and too frequent building exhibitions.

The Mayor and Council of Bath are about to set up a memorial to Jane Austen, the novelist, in the Pump Room of the city. It will take the shape of a bronze bust, and will be inscribed with a list of the inscription setting forth that this tribute was to commemorate her vivid pictures of the old Bath life and manners in "Persuasion" and "Northanger Abbey."

"Nachrichten für Handel und Industrie" (Berlin) notifies, on the authority of the German Consul at Amsterdam, that a building is to be erected at that place for a large public library. It will contain book space for one million volumes, and accommodation for 100 ordinary readers and 50 students. It is desired that the building should be of a high standard of construction, and safety building equipment. Consequently, adds the Consul, no time will be lost in inviting tenders. The contract will include heating, lighting, ventilation arrangements, etc.

According to a report from Amsterdam, the building trade was active during 1911, and is expected to continue so during the next two or three years; in fact, there has never before been so much building going on in Amsterdam at one time. A new stock exchange, hall, and shops, and other official buildings are in course of erection, and there is a project to build a new royal palace. This activity will produce a demand for considerable quantities of building materials, furniture, sanitary engineering, heating, and illuminating appliances, etc.

The Local Government Board have given authority for the preparation of four further town planning schemes under the Housing, Town Planning, etc., Act, 1909. Three schemes are authorized to be prepared by the Corporation of Sheffield, and one by the Corporation of Newcastle-upon-Tyne. In the case of Sheffield the scheme is to apply to three areas within the city situate at (1) Greystones and Hannerdale (2) Salford and (3) Park Park, Wincobank, and Shire Green, and comprising about 1,100 acres. In the case of Newcastle-upon-Tyne, the scheme is to extend to an area of about 53 acres at Craghead Den.

The lower part of this slab has now been recovered, and been found to be the same as the one which it appears that he was the ninth abbot. This corresponds with the numbered list of abbots given in the second Record of the Excavation Committee.

CURRENTE CALAMO.

Mr. Kearn's paper on the cost of labour in connection with the erection and maintenance of buildings, at the Surveyors' Institution next Monday evening, should attract many hearers. We are all so much interested that we shall print the paper in full; but it deserves to be heard, because the author is not a pessimist, and he will raise several points about which architects and builders worth their salt should have a word to say. For instance, in regard to day-work he is going to say one or two things well worth listening to, though whether they will make for "peace and quietness" we do not know. Anyhow, the shyness of the average quantity surveyor is so invincible that it is next to impossible in the ordinary way to get anything from him in the shape of an opinion, and Mr. Kearn's genial openmindedness marks a sort of epoch, and should be celebrated, as we trust it will be, by an appreciative and rousing discussion.

The long report we give this week in our Legal column of the arbitration between Messrs. John Barker and Co., Ltd., and the Hurlingham Club is worth the very careful study of every reader. Comment is barred by the fact that the case is still practically *sub judice*, as it has been decided to take the case to the Divisional Court. We understand that it is unlikely that it will be held there before the Long Vacation.

Suggestions—possibly *sub rosa*—from site-owners and others multiply in regard to the location of the proposed central building for London University. One wants it on the southern bank of the Thames, east of the new London County Hall, and, therefore, between Charing Cross and Westminster Bridges. Another is in favour of Gray's Inn gardens; but that stately placeance and its surrounding piles of decrepit buildings have survived many such suggestions. So far Mr. Niven's scheme, in our opinion, holds the field.

The twelfth exhibition of the International Society of Sculptors, Painters, and Gravers, at the Grafton Galleries, is mainly marked by the self-sacrificing or unavoidable self-abnegation of its members, not more than half of whom were represented, and those frequently by old work. Generally, it is a very miscellaneous assemblage, and the relics of the past of more or less distinguished painters are neither attractive nor inspiring. With the exception, perhaps, of Alfred Stevens' three contributions, "The Aether" (1), "Femme au Tourterelles" (21), and "Pensive" (36), it is impossible to enthuse much over such examples as those of Sisley, Renoir, Manet, Courbet, Carrière, or J. F. Millet. There are not many portraits. The best are Mr. William Nicholson's group of "John and Arthur Fitzgerald" (7), and "A Barrister" (42). The first is worth better company! Mr. Walter Greaves' portraits of his two sisters (10 and 50) are well worth study, if disturbed by wonder how they came here. Anyhow, they are two of the most interesting things in the place.

Of Mr. A. Jamieson's three contributions, we like best his "Portrait of a Man" (42). Mr. Charles Shannon's "Wood Nymph" (39)

has, of course, been seen before, and is not the less welcome; and so, if in a less degree, are the two new works of Mr. Charles Ricketts, "The Flight of Cleopatra" (45), and "Job and His Comforters" (17). There is a quietly satisfactory view of "Leventon Cathedral" (54), by W. L. Brackman, and another of "The Spanish House" (120), by Sydney Lee. The best of the few good landscapes is "Cruise" (86), by Mr. Alfred Hayward, and next to it we should rank Mr. Oliver Hall's "Westminster Peat Moor" (41). Those who like that sort of thing will doubtless congratulate Mr. Maurice Denis on his "La Plage" (113), a very overpowering decorative affair in the Centre Gallery; we do not! The Gravings and Drawings, generally, are a rather poor lot. The best thing among them is Mr. John Sargent's "Lady Lewis" (220). There is very little sculpture. Mr. Rodin's three small groups, of course, are all good; and so are Mr. John Tweed's three contributions. His "Lady Eden" (154), is one of the really most beautiful busts we have ever seen.

There was issued on Tuesday night the list of members of the Advisory Committee appointed under the National Insurance Act by its joint committee of the several bodies of commissioners for the purpose of giving assistance and advice in connection with the making and altering of regulations. The list of "Representative Employers and Associations of Employees" seems rather incomplete. Besides, Mr. John W. White, of the National Federation of Building Trades' Employers, and Mr. James Farquharson, of the Scottish Building Trades Federation, whose membership was a matter of course, the only other representative connected with our own great group of industries is Mr. Skinner, of the Ffestiniog District Slate Quarry Proprietors' Association. Where are the representatives of the great stone, brick, cement, timber, glass, and other industries, which surely are as vitally interested as the Welsh slate-quarry owners?

According to the *Daily Mail*, great crowds thronged the new London Museum's temporary home in the State apartments of Kensington Palace last Monday. It was difficult to get near some of the cases, particularly those containing the exhibits sent by the King and Queen and Queen Alexandra. The shoes worn by King Edward when an infant excited great curiosity, and the dolls made by Queen Victoria and dresses worn by her attracted such attention that visitors "moved on" only at the earnest entreaties of the attendants. "A crowd of schoolboys gazed with absorbed expression at the cells for condemned prisoners, the relics of crime that hang on the walls, and the Roman boat found in the bed of the Thames." Possibly the criticism of the Mayoress of Kensington was hardly so fastidious as the curator thinks. One of these days, doubtless, when the London Museum finds its permanent home, a good many of the present "attractions" will disappear.

The London County Council, recognising its duty as the statutory authority for the preservation of ancient monuments in the Metropolis, has decided to insure that the façade and main internal features of Lindsey House, in Lincoln's Inn-fields, shall be retained intact. Lindsey House is of special interest, as it is now the only one remaining of the

original dwellings erected on this site in the middle of the 17th century. In 1661 it was generally accepted as the site for a new building, which has in its construction the work of a number of distinguished persons. The site is a portion of the surplus land acquired in connection with the Kingsway improvement, but the County Council has decided that in any arrangements to lease the building provision shall be made for the preservation of its façade and main internal features.

Among the improvements and alterations that have been effected at Windsor Castle is the provision of a new suite of apartments for the Prince of Wales. This is to be situated close to the King's private apartments, and will comprise five rooms. When the alterations are complete all the most precious belongings of the House of Windsor will be placed there. The fresh quarters of the Castle fire brigade also are well in hand, while the extensive garage for the Royal Motors that was determined upon by the King is now in use. Windsor will require but little attention during the next few years, though the renovation of the fabric is always more or less in progress and the interior presents a much brighter appearance than the days of Queen Victoria.

A curious kind of "trick" is said to have just been put into operation by house-builders and contractors in Geneva. They have increased the rent of their tenants' flats and villas by ten per cent., and the extra money from this source is to be "pooled" in order to recompense the builders for their unlet flats and houses. Naturally, the population are up in arms against this measure; but as all the big firms of builders and house agents have come to an agreement, one is assured by the *Daily Chronicle*, the private householder has no hope of success, and must pay. In the meantime houses and flats in large buildings are springing up like mushrooms in all parts of the town. The inhabitants intend to appeal to the Government to legislate against this objectionable combination. Are the same builders putting up the new flats and houses, one wonders? If so, one understands the agitation. If not, there seems little need of legislation, and less inducement to owners in the half-empty, nearer London suburbs to follow Geneva!

At La Coruña, in Northern Spain, may be seen a fire-tower which is, we believe, with the exception of the ruins of the Roman lighthouse at Dover, the oldest of all such existing structures. The exact date of erection is unknown. The myths accord it to Hercules, whence its name—Torre de Hercules. Others say that the Phenicians, who had established several colonies in Spain, erected this light tower for the Northland cruises. It is more probable that the Roman Emperor Trajan (A.D. 98-117) erected this structure. Its inscription also mentions the name of Servius Lupus, of Lusitania, as the architect. The tower is built of ashlar, and is 9 metres by 40 metres. It has six separate stories, which can only be reached by a circular staircase around the exterior of the tower. The lighthouse was restored in 1684, but at the end of the 18th century was again in ruins. In 1797 it was rebuilt by the Spanish Government, and still sends forth its beams.

the exposure of large architectural drawings, which cannot be seen now for want of wall-space upon which to hang them. The extension of the natural history galleries in three stories will put about double the space available for this popular department of the museum. According to the printed estimates, this first part of the scheme will cost independently of the administrative blocks £47,550. The second part of the scheme provides for the extension, also southwards Brighton-street Chapel, of the machinery-hall, as also the building of a lecture hall at the south-east corner of the museum, with entrance both from the museum and Lothern-street. The third part of the scheme relates to an extension of the other galleries generally so that provision may be made for the necessary expansion of the collections exposed in them. The third part of the project may apparently be described as a "future" extension.

HEREFORD.—The formal opening of the Hereford Art Gallery and Free Library Extension takes place to-day at 3.30. The new building, which is later Renaissance in design, has been built in brickwork with terracotta moldings and finishings. Length 150 ft., width 42 ft., height from bottom of foundations to apex of roof, between 70 ft. and 80 ft. The ground floor consists of a room which will be used as a general access and reference library, with an office for the librarian, and a room for magazine readers. The art gallery is on the first floor, and is approached through the museum room. Its internal dimensions are 58 ft. long, 78 ft. wide, and 25 ft. high. Under the new building a basement has been built to serve as a general store room. The architects for the work were Messrs. Groom and Patington, of Hereford, who were architects for the Kenelm Theatre, which adjoins the library, and also the Hereford Garden City. The building contractors were Messrs. E. W. Wilks and S. N. The total expenditure slightly exceeds £3,500.

SHERINGHAM.—New offices for the urban district council have been opened at Sheringham. The structure is of red brick with stone dressings. The entrance is at the corner, up stone steps, into a red tiled lobby. From this, through central swing doors, access is had to the main building. To the right and left of these swing doors are the general inquiry office and the rate collectors' office. Passing through the doors and along the corridor is on the right the office of the clerk, and on the left that of the surveyor. A spacious staircase leads on to the next floor to the council chamber, with on either side of it two smaller rooms, available for committees. All the rooms are brick floored and fireproof. Messrs. Stanley, Simons, and Co., of Sheringham, were the architects, and Messrs. Blevins and Son, Sheringham, the contractors, the accepted figure for the building being £1,285.

STAFFORD.—The Stafford town council have adopted a cottage building scheme for the provision of twenty working class dwellings. The cottages will comprise: One living room, 12 ft. 3 in. one kitchen, 12 ft. 3 in.; pantry, coal-house, and w.c.; cooking range, sink, and washing copper; three bedrooms and two bedrooms alternately. The gardens will have an average depth of 52 ft. Taking the cost of the erection of the houses at £3,200, the interest, ground-rent, rates, and water rent, insurance, income-tax, renewals fund, etc., will make a total annual charge of £194 15s. With the weekly rental of 4s. for the three-bedroom houses and 3s. 6d. for the two-bedroom houses, the total annual rental will be £195. On a 3 per cent. basis the sinking fund will amount for 30 years to £37 5s. 3d. per annum, and for 40 years to £42 8s. 10d. per annum. The council laudably wants to raise the tone of the town, and by building these twenty houses hopes to set a good example to owners to keep their property in proper repair.

STOKE-ON-TRENT. At the last meeting of the Stoke-on-Trent Education Committee the tenders in connection with the erection of the new Central School of Science and Technology were opened and considered, and

it was recommended that the tender of Mr. T. Godwin, of Hanley, for the erection and fittings of the new Central School of Science and Technology, in accordance with the plans and specifications and bills of quantities prepared by the architects and quantity surveyors, for the sum of £17,100, be accepted; that the tender of Messrs. Lowndes and Co., of Leek, for the provision and fixing of the heating apparatus in connection with the new Central School of Science and Technology, in the sum of £508, be accepted. The chairman reported that Mr. Edwin Lawton, of Richmond-street, Penkull, has been appointed clerk of the works. The tender in connection with the provision and erection of two portable temporary schools for the Hanley district were opened and considered, and it was recommended that the tender of Messrs. F. D. Cowieson and Co., for the provision and erection of a portable temporary school to accommodate 300 children, in a corridor with the specification as prepared by the architect, in the sum of £445, be accepted, and that the tender of the Alhwin Foundry and Engineering Company, Ltd., for the provision and erection of a portable temporary school to accommodate 200 children, in accordance with the specification as prepared by the architect, in the sum of £425, be accepted.

TODMORDEN. The picture-post park at Centre Vale and the commodious new Secondary School on the Etile estate, have been opened. In addition to charming field and woodland, the park embraces the town's cricket field, two spacious mansions, cottages and farm buildings, two lodges, and a beautiful expanse of woodland known as Buckley Road. The new school provides accommodation for 255 pupils, and comprises domestic science room, gymnasium, manual instruction workshop, dining room, spacious assembly hall, classrooms, book stores, chemical and physical laboratories, art rooms, etc. The architects have been Mr. Jesse Horsfall, of Todmorden and Manchester who died while the building was being erected, and Mr. J. E. Stott.

CHIEFS.

The Havick Town Council has decided to build a municipal lodging house at an estimated cost of £1,000.

The Local Government Board have sanctioned a loan of £8,700 for extensions of building and plant at the Rochdale electricity works.

A new east window is to be presented to Minster Church. It is the work of Messrs. Groom and Patington, of London, and the subject "The Women at the Sepulchre."

The new drill-hall, Ramsey, Hunts, has been opened. The premises are the old Wesleyan chapel and schoolroom converted. Messrs. Tackcray, of Huntingdon, made the alterations.

The Devonian Church Building Society has made a grant of £2,000 towards the cost of building the rectory at St. Andrew's, Devonport. The plans have been formally passed by the Diocesan Committee.

A collection of paintings, architectural drawings, and sculpture, including specimens of the work of all the members and associates has been presented to the King at Buckingham Palace, as the Royal Academy's Coronation gift.

The first to be submitted in Scotland, a town planning scheme for the Rosyth (Forth naval base) area, was on Wednesday the subject of a Local Government Board inquiry at Dumfries. The Local Government Board inspector reserved judgment.

The Treasury have sanctioned the payment for the Department Fund of £2,000 a year for three years, to be distributed by the Board of Agriculture as grants to certain institutions in England and Wales, to enable them to supply technical advice to landowners and others interested in forestry.

The new postal sorting-office in Weston (line, near the station) will be opened by the Western surveyor of the Post office on Monday. The new building, which adjoins the railway station, is one of the finest and best equipped sorting-offices in the North. The surveyor will be presented with a gold key as a souvenir of the occasion.

Correspondence.

SPECIALIST OR SUB-CONTRACTORS?

To the Editor of the BUILDING NEWS.

SIR, Hearing that my recent article under this heading, in your issue of March 22, has caused much interest amongst your readers, and, in reply to several correspondents, there is one point I desire to make even plainer than I did before. The ordinary building contract is not only binding and effective as between the parties by whom it is made, it follows, therefore, that as regards third persons who are outside that contract, and may not even know of its existence, and still less of its contents, it is in any law, especially that of private law, quite as to be applied. Now, what is to be set out in the contract does not affect the case, who, on the other side its provisions, deal with the building owner through his agents, to act in the general of the contract. When work or goods are specified by the architect and he gets the estimates, he, in fact, and in law, acts as agent for his principal, the building owner, in so doing. The sole agent of the owner of the building order is the architect, by whom the contract does not alter the fact that the specialist has already made a contract with the architect, as agent for the building owner as the real principal, whether disclosed or not. If all goes well, and the contractor pays the specialist, no legal point arises; but if he does not, then the specialist comes back upon the building owner, to whom, through his architect, he has already given credit. The only way I can see of guarding against this risk to the building owner is to make the specialist enter into a separate contract with the general contractor when he supplies the goods or does the work, whereby he will agree to give credit to, and look for payment from, this contractor only. The confusion has, of course, arisen from the habit of putting these specialists into the contract as being sub-contractors, when in fact they may not be. It is in this way that the elementary legal rules regulating the relations between principal and agent and third parties have been obscured and disregarded.

While writing, perhaps I may refer to the letter signed "Justice" in last week's issue, headed "Wanted, A Legal Defence Association." From my reading of recent decided cases, it would certainly seem as if the building owner could be induced to devote practical attention to this side of its activity, and so advise its members on simple legal matters before they found themselves launched in loss, in litigation, or both.—I am, etc.

THE WRITER OF THE ARTICLE.

April 9.

WANTED, A LEGAL DEFENCE ASSOCIATION.

SIR, I agree as to much put forward in your last issue by your correspondent, "Justice," in regard to the great injustice often resulting in building disputes and technical cases, in which, architects have to do, get very unfairly made in damages and costs, even when the tribunal itself before whom the trial is conducted expresses through the presiding judge, a full sympathy with the architect in question, as in the recent well-known and cruel case on the liability for dry rot which went against Mr. Trollope.

The institution of a Voluntary Protection Committee, such as "Justice" advocates has, as a matter of fact, been long since anticipated—at any rate, to a considerable degree.

Our Illustrations.

LLOYDS BANK, OKEHAMPTON.

The Bank at Okehampton, of which we give two photographs, is built for Messrs. Lloyd in Beer freestone for the dressings, and in-filling of cement roughcast, with the recessed quoins of smooth cement. The roofs are covered with green Westmoreland slates. The banking-hall fittings are of teak, with plaster columns. The general contractor for the work was Mr. G. K. Blatchford. Mid-

front, a series of cherub-heads with folded wings form the supporting members, the intervening space being enriched with flower swags or garlands, subordinated to the rhythmic lines of a rather unusual treatment of scrollwork. The more solid parts of the carving are built up in oak, while limework, glued or nailed on, is used for the lighter portions. Each figure varies from its neighbours in pose and arrangement, and the whole work is executed with great vigour and masterly appreciation of the point of view from which the carving is to be seen. A logical thoroughness of design makes the

COMPETITIONS.

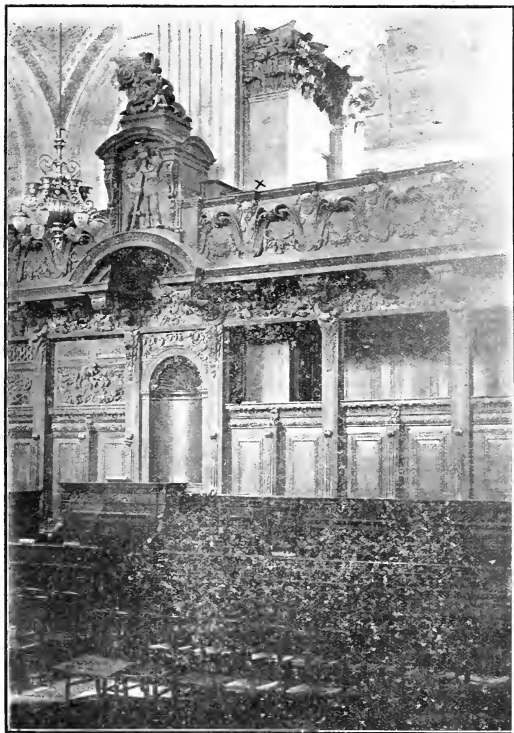
GLASGOW—The protest of Glasgow architects against the employment of the city engineer to carry out the extension of the municipal buildings has borne fruit. At the last council meeting a resolution was proposed by the chairman of the buildings committee to adopt one part of their report; but he said there was a subject on which they were not unanimous, and that was whether they should have an open competition and invite outside architects to prepare plans, or whether they should employ the architectural staff of the corporation. In the preparation of the report, Mr. Houston, the architect in Mr. McDonald's office, had been constantly employed for several weeks, and he had shown a mastery of his subject which was beyond praise. That being so, was it reasonable that he should be thrown aside when it came to the appointment of an architect, feeling, as Baile Mason did, that he was capable of producing plans which would satisfy all their needs. Mr. Houston and Mr. Horne, the two architects in Mr. McDonald's office, were among fifteen competitors who gained promissums, and whose plans were selected in a recent competition for new buildings for the London County Council, costing somewhere about £1,600,000. That alone stamped them as men of the highest standing in their profession. An open competition would mean increased costs for architects' fees and prizes to competitors, and a delay of at least six months, which, he thought, was very serious at this stage, as part of their ground was at present lying idle. Dr. McConnell seconded. If, he said, they went outside for an architect it would mean an increased expenditure equivalent to an increase of about 10 per cent on the rates. Past experience had shown that the corporation architects had not only kept within their estimates, but that the work when completed had given entire satisfaction. Mr. Carlton moved an amendment that competitive plans and designs be invited from outside architects for the erection of the buildings. In an important contract like this it was imperative that they should have the most skilful and experienced architects they could obtain. The amendment was seconded, and carried by 30 to 27 votes, so presumably competitive designs from outside architects will be invited.

KING EDWARD MEMORIAL, CANNING FORE.—In this competition, B. Ram Sharma, head draughtsman, University Building Division, F.W.D., Allahabad, has been awarded the prize.

PORT OF LONDON AUTHORITY'S NEW HEAD OFFICE.—In response to the competition announced in November last, inviting the submission of preliminary sketch designs for new head offices for the Authority, 170 designs were received. The Authority, on the advice of their assessors, Sir Aston Webb, C.B., R.A., have selected the six designs sent in by the following architects:—Mr. Robert Atkinson, A.R.I.B.A.; Messrs. J. A. Bowdon and T. Wallis; Mr. Edwin Cooper, F.R.I.B.A.; Messrs. Lancaster and Rickards, F.R.I.B.A.; Mr. J. Reginald Truolove; Mr. Ernest W. Wray. The authors of these designs will be invited to take part in the final competition, at an honorarium of two hundred guineas each. The authority do not propose to exercise the right they reserved to themselves of inviting designs from architects other than those who took part in the preliminary competition.

The Croydon Urban District Council has given instructions for plans for new council office to be prepared.

The contract for the completion and extension of the Institute of Civil Engineers' new building, London, has been given to Messrs. Smith, Major and Son, Ltd., of London and Northampton, their Sanitary Engineers with Veechwood, which renders a convincing impression, having been selected as a demonstration of the merits of their system. The three main passenger lifts will be fitted with their piston-tail automatic lifting system of gear, which has gained a wide reputation for reliability and accuracy of stopping at floor-levels.



CHOIR STALLS, ST. PAUL'S CATHEDRAL.

(For Details, see Double-page Plate.)

Devon Joinery Works. Messrs. Horace Field and Simmons, 1, Lougham Chambers, Langham-place, W., were the architects.

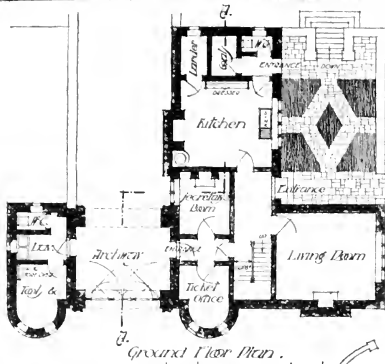
ST. PAUL'S CATHEDRAL: DETAIL OF UPPER PART OF CHOIR-STALLS.

The choir-stalls and organ-case of St. Paul's Cathedral, designed by Sir Christopher Wren, and carved by Grinling Gibbons, are acknowledged to be the finest Late Renaissance stallwork in Europe. The design of the stalls takes the form of a series of panel divisions, with a continuous projecting canopy over this feature, forming the front of the upper gallery. This canopy-work is carried on brackets, every alternate one being enriched in the form of a cherub with outspread wings. Above, on the gallery

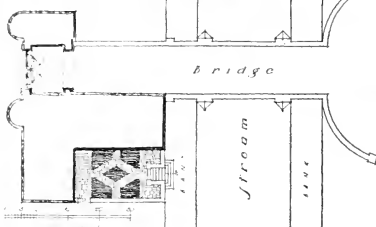
detail, even in the darkest corner, was rare examining. Sunlight, necessarily, is rare inside the choir of St. Paul's; but when its rich carving is illuminated by an errant ray, the cherub faces seem to glow with a quaint, solemn gladness such as Gibbons alone knew how to render. Our pencil illustrations were drawn by Mr. J. Craigie Bone, of Edinburgh, who has likewise lent us the accompanying specially taken photograph reproduced herewith, to give a perspective key to the parts shown at large by these excellent sketches of the detail.

DESIGNS FOR A STONE BRIDGE AND TOLLHOUSE.

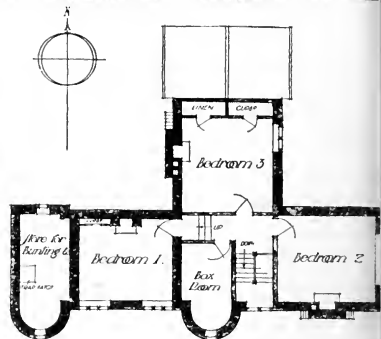
For a description of the two double-pages carrying the three designs, see our assessors' report on p. 515.



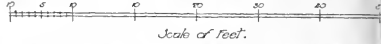
Ground Floor Plan.



Plan of Bridge



1st Floor Plan.



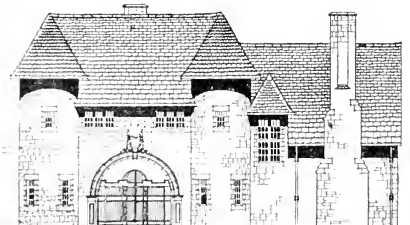
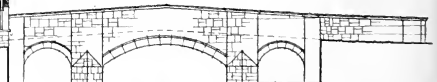
Scale of Feet.



Left Elevation

PLACED SECOND

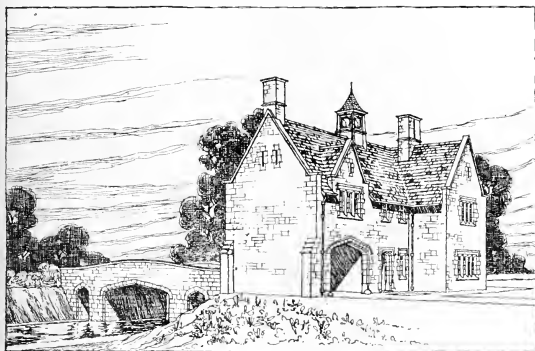
"Building News" Designing Club
Design for
A Stone Bridge and a Tollhouse
by
"My Art"



South Elevation



Section



• View from
South West •

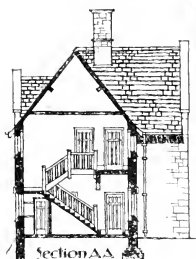
Building News Design Club:

Design for
A Stone Bridge
and Toll-house

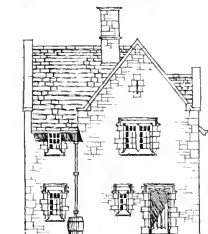
By LIVER, April, 1912



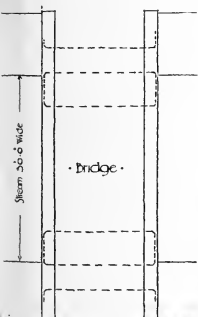
• South Elevation •



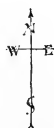
Section A.A.



• East Elevation •

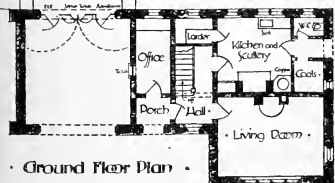


• Bridge •

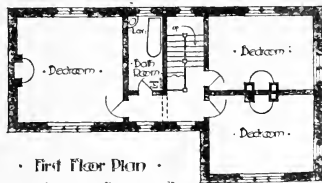


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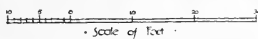
• West Elevation •



• Ground Floor Plan •



• First Floor Plan •



• Scale of Feet •

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in real name and address. No others can be sent a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

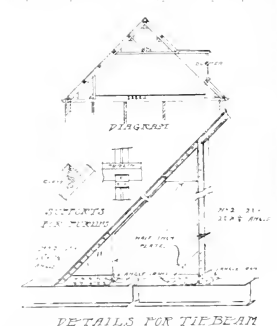
Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries are terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

REPLIES.

13006—SCHOOL ROOF. I saw a very good way of dealing with a similar room in the roof of a secondary school which we were visiting a few months ago. In this case the room was to be used as an assembly hall of importance and a gymnasium. Solid steel joists were used to carry the floor and to take the place of the beams. The correct size of the joists, of course, and depend upon the strength of the intermediate beams. No doubt queries will have to be made by using joists. The truss is then completed by using No. 2 (12 in. by 2 in. by 1 in.)



DETAILS FOR TIE BEAM

As shown in the drawing, the tie beam is supported by the rafters and the truss. The tie beam is made of solid steel and is used to carry the floor and to take the place of the beams. The correct size of the joists, of course, and depend upon the strength of the intermediate beams. No doubt queries will have to be made by using joists. The truss is then completed by using No. 2 (12 in. by 2 in. by 1 in.)

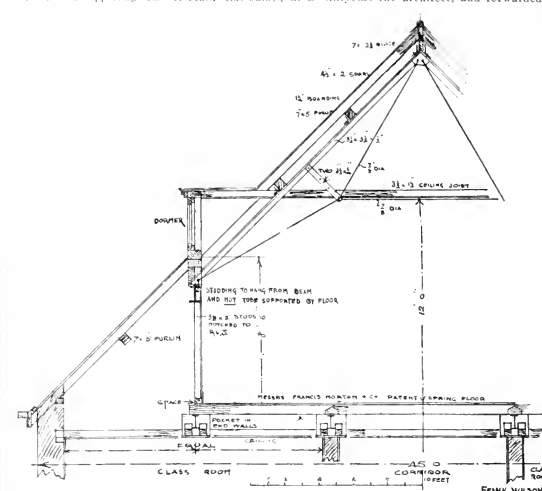
SCHOOL ROOF. I saw the method of construction of a similar room in the roof of a secondary school which we were visiting a few months ago. In this case the room was to be used as an assembly hall of importance and a gymnasium. Solid steel joists were used to carry the floor and to take the place of the beams. The correct size of the joists, of course, and depend upon the strength of the intermediate beams. No doubt queries will have to be made by using joists. The truss is then completed by using No. 2 (12 in. by 2 in. by 1 in.)



T.W.M.G. I saw the method of construction of a similar room in the roof of a secondary school which we were visiting a few months ago. In this case the room was to be used as an assembly hall of importance and a gymnasium. Solid steel joists were used to carry the floor and to take the place of the beams. The correct size of the joists, of course, and depend upon the strength of the intermediate beams. No doubt queries will have to be made by using joists. The truss is then completed by using No. 2 (12 in. by 2 in. by 1 in.)

addition, then in my opinion the thicknesses of walls shown would be suitable.—J. Bromley, Moor Villa, Lower Bunk road, Fulwood, Preston.

13006—SCHOOL ROOF.—The roof as shown in this week's question is proposed to be constructed in timber on steelwork joists, and is altogether impracticable, and would be much better carried out on simpler lines, as shown herewith. The dancing floor must be entirely detached from the roof trusses and the ceiling below, and not supported by the tie-beam as shown in the question. The detail shows a R.S.J. size suitable for the required span, placed under the line of dormer windows, and supporting the sloothed side-wall.

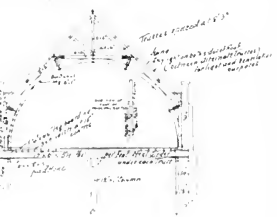


which should be hung from this joist, leaving a small space between sloothed-off and floor. The ceiling joists of the rooms below must be entirely detached. For further particulars of the dancing floor see the Building News for July 5, 1906, and read the answers given therein to question 12944.—Frank Wilson, 22, Nottingham Street, Sheffield.

STATUES, MEMORIALS, &c.

DOVER. The bronze statue of the late Hon. C. S. Rolls designed by Mrs. Scott, wife of Captain Scott, the Antarctic explorer, has arrived at Dover. It is to be erected on the sea-front to commemorate the double Channel flight made by Mr. Rolls from Dover to Calais and back. The statue is 8 ft. in height, and represents Mr. Rolls in flying costume.

The appeal of the Bank of England against the increase of the gross assessment from £75,000 to £100,000 was mentioned on Wednesday at the Guildhall Court of Quarter Sessions, but further adjourned by mutual consent until the next session.



Mr. King and Queen have lent the Victoria and Albert Museum an interesting group of musical instruments, a harmonium, a piano, and a harpsichord.

LEGAL INTELLIGENCE.

IN THE MATTER OF THE ARBITRATION ACT, 1889, BETWEEN MESSRS. JOHN BARKER AND COMPANY, LIMITED, AND THE HURLINGHAM CLUB.—This is a dispute arising under a contract dated November 19, 1906, between the above-mentioned parties in regard to certain alterations and additions to the Hurlingham Club, to cost £5,627. It was alleged for the plaintiffs that a document called "Specification Notes" was prepared by Mr. E. L. Lutyens, the architect, and forwarded to

the claimants, together with two general drawings. The approximate cost of the work to be about £5,000, and the tender to be in five days. Contractors had to prepare their own quantities and deposit a fully priced copy with the architect. The claimants sent in their tender and it was duly accepted, and the contract was signed on November 29, 1906, at Mr. Lutyens's office. The architect had, previously to the signing of the contract, written to the claimants informing them that the contract was the stereotyped R.I.B.A. form. This, it was alleged, was not the case when they received it. The architect, however, commenced the work. From time to time, as the works proceeded, the claimants allege that they asked the architect for details and explanations. Alterations were constantly going on and one of the conditions of the contract was as follows:—"13A. No extras whatever will be allowed except upon a written blue order signed by the employer and the architect (the cost being first ascertained and approved by the committee)." The "Specification Notes" are, it was alleged, unfair, throwing the whole responsibility for mistakes and errors on the contractors, and they had to presume every little whim and fancy of the architect and his assistants. The architect, by his surveyor, prepared a summary in January, 1909, showing a balance due to the contractors of £134 17s. 2d., with a note at the bottom which ran as follows:—"Which is absorbed by further credits on contract works after payment of £52 10s. by Messrs. J. Barker and Co. to A. J. Thomas, for surveyor's fees and expenses in adjusting accounts." On March 17 of the same year, a further summary was forwarded to the contractors, which is alleged to be a final certificate in which the architect considers that the contractors have been overpaid £513 9s. 8d. In this summary the architect deducts everything which is contained in the specification, and not done under his order, has not allowed for variations and substitutions on the particular work which has been carried out, and he has refused to allow for same. On June 6, 1910 as the architect himself, under the terms of the contract, would not deliver details of how his account was made up, applications were made for particulars of various items in his summary of March 17, and

consideration of its effect and bearing on the other conditions of the contract. In fact, Mr. Hudson, in his book on "Building Contracts," says of a somewhat similar clause that it is "unworkable in relation to all but small contracts. But the clause as there set forth must be altered and have understood at its meaning, and I have to interpret it. The meaning of it is that which I have previously endeavoured to indicate. As to omissions, there is no difficulty. The contractor cannot act without authority, and the omission of an article in the contract by subsequent written sanction by the architect. The employers can have the value of omissions taken and allowed for. Generally speaking, therefore, the way I shall approach my duties as follows: I shall examine each item, and if it is not put before me, in order to ascertain whether or not it is work entirely outside the scope of the undertaking. If it is, I cannot further consider it, except by the agreement of the parties. If it is not, I shall take into the getting on with the undertaking, and to determine whether it is work extra to the work comprised in the specification and drawings, and if it is, whether the four sets of circumstances are in combination, which enable me to refer it to Clause 32 of the conditions, or any one of the four sets. If the circumstances are absent, and if any claim for payment is made, I have to consider Clause 13A and apply the provisions of that clause. If I determine it is not work extra within the meaning of Clause 13A, I have to consider Clauses 11 and 12, and if to increase of price is claimed against the employer on net balance, I have merely to let it the question of net balance. But if an increase of price on net balance is claimed, I have again to consider and apply Clause 13A. I think it is a mistake to think that the contractors have argued that if the contract had been carried out according to the methods in which, in my opinion, the parties did, in fact, agree to carry it out, it would have proved impossible to make it at all. I think the opposite is true, agree, conversely have proved very difficult, but though there is in the conditions the usual clause as to the date of completion, and the usual penalty for non-completion, there is equal to the usual clause which compels the architect to make a fair and reasonable extension of time if the work is delayed (under any) by reason of authorized extras or additions. Had the contractors adhered strictly to what I consider to be the true terms of the contract, I think I have to say that the contractors are nearly as great a difficulty as the contract is claim that they themselves would have. The committee would have had to sit almost continually, would have been asked for daily or weekly decisions, and the contractors would have been entitled to hang up the work until the blue orders were in their hands or had been refused. I, however, have to deal with the contract as it is, and with the facts as they occurred, and not as they might have occurred. Both parties had adhered strictly to their rights.

SECOND RULING.

I have been requested by counsel for the Hurlingham Club (hereinafter called the Employers) to give a ruling on a point arising in this arbitration, the point being whether I have any power, as Arbitrator, to adjudicate on any items contained in an account which has been put forward by Messrs. John Barker and Company, Limited (hereinafter called the Contractors), as work extra to the work comprised by Mr. Herring, the witness on their behalf, whose evidence has been intervened, without prejudice, owing to the necessity for his going abroad. I am of opinion that I can have regard to such evidence, and that, as I have said in a previous ruling, there is no necessity that I should give my reasons, and it would, in many cases, be undesirable that I should do so, even in the hope of assisting the parties to come to a conclusion. I propose to state my reasons for my ruling. Mr. Herbert Smith, the witness for the Contractors, has been asked to give evidence while the subject-matter of the dispute, so far as the contractors are concerned, is, according to his view, really fixed by an account which the contractors sent in in February, 1910, yet they are now attempting to call in their claim by the account which has been made up by Mr. Herring. Mr. Herbert Smith alleges that the contractors are entirely bound by their earlier account. That the situation was as though they had issued a writ, and that they are now seeking to bring a lot of other claims into the same writ, and that they cannot do it. I do not think that they are so bound. Nor do I think that Mr. Smith's analogy as to the writ is a correct one. The difference between the contractors' original account and Mr. Herring's account does not involve any new and entirely different cause of action, but is one really of figures only. A specially-endorsed writ can be amended in

certain circumstances without leave, and always with the leave of the Court, and a money claim originally confined to one sum can be increased to a larger sum after the writ has been issued. The document which I regard as having been the starting point of this position is the notice of submission given by the agent of the contractors, claiming that a dispute had arisen. In the rentals of that notice it is stated that the contractors claim that further moneys are due to them from the employers, but they do not state what further moneys are due, and though they may before that date have sent in the account which Mr. Herbert Smith now claims that they are bound by, it has not anywhere been shown to me that the contract has been stated or admitted that this was the full extent of their claim, nor that they specifically refer to that document in the rentals to the notice claiming that a dispute has arisen. Quite wisely, in my opinion, they claimed that notice in the local press. Even if the case stood in their favour, but I do not think that it rests there. I am of opinion that Clause 32 of the conditions annexed to the articles of agreement under which my powers arise, has reference to a case of this description. I am of opinion that the Contractors' application of which has puzzled me considerably, but I think that these words have to be applied in this particular instance. The words are as follows:— "The Arbitrator shall have power to open up, vary, and to reverse any order of opinion, decision, requisition, or notice save in regard to the said matters expressly excepted above, and to determine all matters in dispute which shall be submitted to him, and of which notice shall have been given in accordance with the provisions of the contract, or notice shall have been given." I think that the contractors' original account is one of these particular documents in the nature of a requisition or notice which I am enabled by that part of Clause 32 to open up, review, and reverse. Accordingly, I think Mr. Herring's account, though, of course, it is within Mr. Herbert Smith's power to comment on and to question the propriety of any difference between Mr. Herring's account and the contractors' original account.

THE LATE MR. ALBERT CHANCELLOR.

On Wednesday, the first meeting of creditors was held under the failure of Mr. Albert Chancellor, deceased, late of 6, Penbrooke Villas, Richmond, formerly in the firm of Chancellor and Sons, auctioneers, Richmond. An adjournment of the meeting was recommended by the creditor on the ground that it was a case for a trustee to investigate. The Official Receiver (Mr. E. W. J. Savill) understood there was a considerable amount of valuable furniture, and he also understood that at one time there were branches of the business at A. Cot, Sunningdale, and Staines. He noticed that the executors of Sir G. S. and Lady Mason were creditors for a considerable sum, from a list lodged by the petitioning creditors, they amounted to several thousands. The meeting was adjourned for a fortnight.

WATER SUPPLY AND SANITARY MATTERS.

BIDEFORD.—Bideford Town Council, Devon, on Wednesday, adopted a £20,000 water supply scheme by which the water storage capacity will be increased to 44 million gallons, giving sufficient water for eleven months.

TRADE NOTES.

I under the direction of Mr. S. Stall and company, Oxford, Boyle's latest patent "air-pump" ventilators have been applied at the New County Offices, Oxford.

Horden Church, Co. Durham, is being ventilated by means of Shorland's patent exhaust roof ventilators supplied by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

Mr. Edward Austin Abbey, R.A., left £4869, with net personality £1,129.

The Sanitary Committee of the Basingdon Corporation are recommending the purchase from Basingdon's trustees of a quantity of land on the north side of the borough, for the purpose of erecting workmen's dwellings.

The Bishop of London consecrated on Saturday the Church of St. James, Perivale, Ealing, which has been built at a cost of £8,000. The building is in the Gothic style, and was designed by Mr. W. A. Pitt.

Our Office Table.

Mr. Geo. R. Goldbridge, M.Sc., delivered an illustrated lecture on "The Stone Circles of Eskdale" at Langholm last Tuesday night. He said that such circles were scattered up and down Britain. The circles in Eskdale, as in the case of others, were formed of boulders selected from those in the hillsides or on the river beds. The circles of stones forming, apparently, processional roads, lead from the circles. The two circles in Eskdale were called Lompin Stones and Girdlestones. All the old theories assumed that the circles were built for the purposes of heathenish worship. He would, however, try to show that, while that might be quite true, the form and position of the circles were really for the purpose of determining the Calendar—that the circles had not only a religious purpose, but an astronomical one, too. What he had been able to do led to the opinion, expressed by Sir Norman Lockyer, that the Lompin Stones were amongst the very oldest circles in Britain.

Rapid progress is being made with the Elizabethan setting for the spectacle of "Shakespeare's England," which is to be opened at Earl's Court a month hence. Already scores of houses, which when completed will resemble old oak, are in course of erection. One is a facsimile of Hawley Hall, where the famous "Bess of Hardwick" kept Mary Queen of Scots so long a prisoner, and where Mary spent her time in tapestry work. One of the chairs worked by her has been lent by the Duke of Devonshire. Historic 16th century buildings—such as Lady Mary Hall, Ford's Hospital, the Coventry almshouses, old Holborn house, Exeter Town Hall, and a famous Elizabethan church—will be reproduced. These will be archaeologically accurate may be expected, inasmuch as the designing and the construction of the Elizabethan town have been entrusted to Mr. Edwin Lutyens.

The draft Bill amending and extending the Advertisements Regulation Act, 1907, which the Seaport Society hopes to introduce into Parliament this Session, seeks to confer upon urban authorities the same powers of dealing with obnoxious advertisements as were bestowed upon rural authorities last year ago.

Clause 2 proposes that the exhibition of all advertisements on land or buildings shall be subject to regulations, while power is given to prohibit altogether those advertisements which do not relate to the land or buildings upon which they are exhibited. A sub-section of this clause recognises the desirability that local authorities should not be compelled to exercise this power of prohibition throughout the whole of their area, and accordingly it empowers them to deal with various districts differentially, so that they may prohibit "alien" advertisements in rural and residential areas and regulate those in the business parts of towns or villages. The fundamental aim is to insure that the size, colour, and material of the letters or device employed shall show a reasonable regard for the size and situation of the buildings on which the advertisement is displayed.

The World "is a little sceptical about the new 'London Society'."

It is to make every Londoner a critic, it cannot insure that any one critic will agree. As things are now, the learned are content to dispute about Renaissance architecture; but with all London interested in the matter there would be a movement to pull down St. Paul's Cathedral, a counter movement to defend it, and consequent riots on Ludgate Hill. It is possible that William Burges, once solemnly told us that, in his opinion, St. Paul's Cathedral was only worth dropping into the Thames!

The Aberdeen Synod of the Church of Scotland had a long sitting on Tuesday, on the question of a memorial to the late King presented by King George to Charles Parish Church. The Rev. Jacob Primmer contended that the memorial was not a Communion table, but an altar; that it was not to be the doctrine of the Church, and he asked that

flooring: White and Planed—					
1st and 2nd quality mixed	9	0	0	0	6 0
1st, 2nd, and 3rd quality mixed	8	5	0	0	8 10
Red Planed, 1st quality	11	6	0	0	11 10 0
Pitch Pine: Frame Deals and					
Boards	17	0	0	0	20 0 0
Aluminum Vile	8	10	0	0	12 0 0
Per foot super, as lin.					
Yellow Pine Logs (waney board)					
Pitch Pine Logs	0	3	0	0	4 3
Birch: Quebec Logs	0	3	0	0	1 10
Oak: Austrian Wainscot	0	7	0	0	8 2
Mahogany: Gaboon	0	0	13	0	0 09

VARNISHES, &c.

VARNISHES, &c.		Per Gallon.
Fine Pale Oak Varnish		0 10
Fine Copal Oil		0 10
Superfine Pale Elastic Oak		0 12
Extra Hard Church Oak		0 12
Superfine Pale Elastic Oak, for outside of Church		0 14
Fine Elastic Carriage		0 12
Superfine Pale Elastic Carriage		0 12
Size Pale Oil		0 12
Finest Pale Durable Copal		0 18
Extra Pale French Oil		0 18
Regent's Plating		0 18
White Copal Enamel		0 12
Extra Pale Paper		0 10
Best Japan Gold		0 16
Best Black Japan		0 16
Oak and Mahogany Stain		0 8
Brunswick Black		0 10
Berlin Black		0 16
Knottin		0 8
French Brack Polish		0 10

WAGES MOVEMENTS

COUNTRY BUILDING TRADE DISPUTES

STONE.*		
Red Manafield, in blocks	per foot cube	£0 2 4
Darley Dale, ditto	" "	0 2 3
Red Lion, ditto	" "	0 2 3
Clooseburn Red Freestone, ditto	" "	0 2 0
Ancaster, ditto	" "	0 1 10
Greenshill, ditto	" "	0 1 10
Chilmark, ditto (in truck at Nine Elms)	" "	1 10
Hard York, ditto	" "	0 2 0
Ditto ditto 6in. sawn both sides, land- ings, random sizes	per foot sqp.	0 2 8
Ditto ditto 3in. alab sawn two sides, random sizes	" "	0 1 3

Bath Stone, delivered on rail at quarry stations	per foot cube	0	1	0
Delivered on road waggons, Paddington				
Depot	"	0	1	6
Ditto ditto, Nine Elms Depot	"	0	1	6
Beer Stone, delivered on rail at Seaton Station	"	0	1	0
Ditto, delivered at Nine Elms Station	"	0	1	6
Portland Stone, in random blocks of 20ft. average:—				

Stretchers and Headers—				
6d. each	8d. each	6d. each	9d. each	9d. each
Internal and External Angles—				
1/2 each	1/2 each	1/2 each	1/2 each	1/2 each
Cill Bulbinoe, Stretchers and Headers—				
5d. each	4d. each	6d. each	6d. each	5d. each
Per 1.000				

Majolica or Soft Glazed Stretchers and Headers	£21 17 6
" " Quoins and Bullnoes ...	26 17 6
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	} Not exceed- ing 9in. x 4½in. x 2½in.
Gambier arch brick, any kind or colour, 1s. 2d. each	
Bricks cut for Clovers and Nicked Double Headers	

These prices are carriage paid in full truck loads to London stations.

	s.	d.	
Thames and Pit Sand.....	7	0	per yard, delivered.
Thames Ballast.....	5	6	"
Best Portland Cement.....	28	0	per ton, "
Best Ground Blue Lias Lime.....	18	0	"

Exclusive of charge for sacks.

We do not hold ourselves responsible for the opinions of

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	Brown	White
Delivered to railway depot	Whit Hed.	Basin Hed.
at the quarry per foot cube	£0 1 6½	£0 1 7½
Delivered on road waggons		
at Paddington Depot ...		
Do, Nine Elms Depot ...	" ... 0 2 1	" ... 0 2 2½
Do, Bimble Wharf		

TILES

TILES.			s. d.	Delivered
Plain red roofing tiles	42	0	per 1000 at rij. atc.	
Hip and Ridge tiles	3	7	per doz.	
Brick tiles	50	0	per 1000	
Ornamental tiles	52	6	per doz.	
Hip and Valley tiles	4	0	per doz.	
Red, red, brown, or glazed do. (Edward's).	57	6	per 1000	
Ornamental tiles	57	6	per 1000	
Hip tiles	4	0	per doz.	
Valley tiles	3	0	per doz.	
Sealed tiles—Plain tiles (Panco's)	46	0	per 1000	
Ornamental do.	43	6	per doz.	
Hip tiles	3	4	per doz.	
Valley tiles	3	4	per doz.	
Rosemary brand plain tiles	48	0	per 1000	
Ornamental tiles	50	0	per 1000	
Hip tiles	4	0	per doz.	
Valley tiles	3	8	per doz.	
Staffordshire (Hanley) Reds or Branded tiles	42	6	per 1000	
Red and tan sand tiles	42	6	per 1000	
Rip tiles	4	0	per doz.	
Valley tiles	3	6	per doz.	
Hartshill brand plain sail-faced	50	0	per 1000	
Pressed do.	57	6	per doz.	
Ornamental do.	57	6	per doz.	
Rip tiles	4	0	per doz.	

OFF

OILS.			
Reprocessed, English pat.	per ton	\$28 16 0	to \$29 6 0
Do., brown	"	28 16 0	27 5 0
Cottonseed, refined	"	28 0 0	30 0 0
Olive	"	38 0 0	40 10 0
Seal, pale	"	21 0 0	21 10 0
Cocoanut, Cochina	"	21 0 0	21 0 0
Do., white	"	42 10 0	43 0 0
Do., Macassar	"	42 10 0	43 0 0
Palm, Lagos	"	35 0 0	36 0 0
Do., Java	"	36 0 0	36 10 0
Glaze 2	"	17 5 0	19 6 0
Do., 1	"	17 5 0	19 6 0
Lubricating U.S.	per gal	0 7 0	0 8 0
Petroleum, refined	"	0 6 0	0 6 0
Do., kerosene	"	0 6 0	0 6 0
Do., Archaangel	"	0 19 6	1 0 0
Lined Oil	per gal.	1 3 0	1 3 0
Fluted Sheet	"	0 10 0	0 10 0
Tarponine	"	0 3 12	0 3 12
Patty (Genuine) ad-	per cwt.	11 0 0	11 0 0
seed Oil	"	11 0 0	11 0 0
" Pure Lined Oil	"	0 10 0	0 10 0
" Heavy	"	0 10 0	0 10 0
GLASS (IN CRATES).			
Fourths	1 box.	21d.	\$40c.
Thirds	"	24d.	31d.
Fourths	"	24d.	31d.
Fluted Sheet	"	24d.	31d.
Hartley's English Rolled Plate	"	24d.	31d.
Fluted and Reponsive	"	24d.	31d.

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AND ENGINEERING JOURNAL.

Edinbham Houre,

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NOTES AND SKETCHES NORTH OF LONDON.

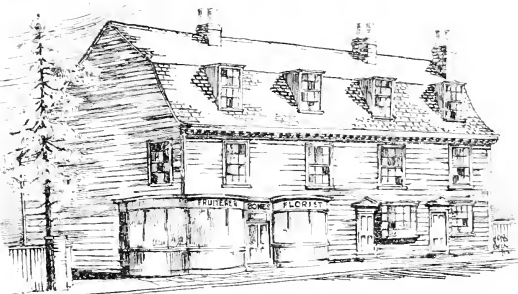
With the approach of spring, the keen architectural student begins more and more to take his pencil, his pen, and his water-colours, and casts about him for fresh examples of that phase of architecture which he has made his own peculiar study, or to which he wishes to turn his attention for the time being.

Good examples of almost all periods abound over the country, and yet each district has peculiarities of its own which have grown up from local conditions and materials, chance circumstances, or around the genius of some great architect of the past. And the student who is a true artist likes not only to find good architecture, but literary associations and picturesque scenery as well. All these are to be found along the Great North-road leading out of London through Tottenham, Waltham Cross, Cheshunt, Broxbourne, and other minor villages to Ware.

WALTHAM CROSS

is the first point worthy of attention, although if the approach be made by way of Enfield, several good examples of Georgian ironwork may be seen guarding the larger houses by the wayside. At Waltham stands one of the only three now

13th-century Gothic monument designed for an unusual purpose. It was the work of Alexander of Abingdon, Dominic de Leger of Rheims, and Roger de Cromdale. The stone was brought from Caen in Normandy, and the cost is stated to have been £95. Away to the right lies the Abbey of Waltham, dedicated to the Holy Cross—a fine example of Norman work, with nave and aisles, stone piers, and semicircular arches. The whole of the choir and transepts have disappeared, and a very decadent Gothic screen, erected some fifty years ago, now makes what was originally the western arch of the tower over the crossing into the east end. The Abbey was founded by Harold in 1060, and his body is said to have been buried here, but the spot is unknown. The ceiling is modern, having been painted by Sir E. J. Poynter. There is a Late Gothic tomb, dated 1599, to the memory of a Lord of the Manor, Sir Edward Derry by name, and his wife and family, and a Renaissance monument of 1697 over the tomb of one, Robert Smith. The tower, of much later date, would make a fine water-colour drawing viewed from the main road, silhouetted as it is against the sky, and crowned with a black oak cross. Returning to and crossing the main road, there lies about a mile away the once famous mansion of Theobalds Park, the scene of many visits from Queen Elizabeth and King James I., who both appear to have taken a particular liking for the place. Practically none of the original structure now remains; but, at the main entrance stands the historic gateway from Temple Bar, which forms an



Weather Boarded Houses, High Street, Cheshunt.

imposing, if somewhat lonely-looking, portal to the present house.

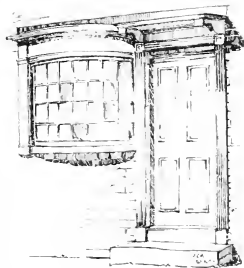
WARE.

Continuing along the road, the names of the villages recall John Gilpin's famous ride from Edmonton to Ware, as related in Cowper's well-known poem; and it is interesting to notice that Cowper was not by



Wrought-Iron Gateway, Hobbesdon.

remaining of the original Eleanor crosses, and this has been very much restored. It seems to have been well handled and forms a most interesting example of a

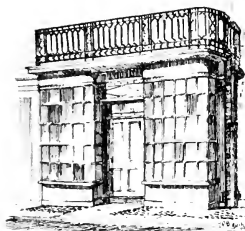


Wooden Bow Window and Door, Cheshunt.

any means the only literary character connected with the neighbourhood; there were Charles Lamb, who wrote frequently about Hertfordshire and the country round here; Samuel Pepys, who visited Ware; and John Scott, the Quaker poet, a native of Great Anwell; while Isaac Walton fished in the

River Lea, and the famous Rye House plot of the reign of Charles II. was hatched in a castle now practically all demolished, but which stood just off the main road near H-blesdon. Quiet houses line the road dating from Georgian times, a combination of red brick and white painted square panelling, sash-barred windows, simple and domestic in feeling, having just that note of richness in doorway or cornice to save them from the dull and commonplace.

Delightful little bow-windows in wood are quite characteristic, frequently combined with a doorway. Weatherbearded cottages or groups of shops appear every now and then to add variety and picturesqueness to the route, whilst once in a while is seen a more pretentious house with wide-proportioned front, strong cornice, and scholarly porch; standing back among the trees, and guarded by a rich, wrought-iron railing and dignified entrance-gates, they remind the traveller of the old-time village squire, once indispensable to village life. Several of these larger houses are to be seen around Knebleton, and one with a very good porch of the Doric order in wood near H-blesdon. That characteristic feature of the period, the iron balcony-railing, is not wanting,



Shop Front, Ware.

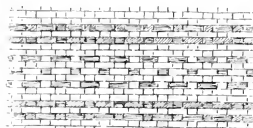
and many examples are to be seen. In Broxbourne is a most curious combination of wood posts and iron filling, perhaps not altogether as happy as might be wished. Ware is a rather disappointing town. Although mentioned in Domesday Book, it conveys very little impression of its ancient foundation. Possibly its commercial position as the centre of the malting industry of Hertfordshire has done much to rob it of any old-world feeling. One or two interesting houses are to be found, however, and the Town Hall, in spite of a very plain and severe stucco front, is rather pleasing.

Ware Church, built of flint and stone dressings, has a good interior, but much restored. It is late Gothic, has nave and aisles and short transepts, with a flat-pitched, bracketed, tie-beam roof of dark colour with gilded bosses. There is a perpendicular wooden screen to the Lady-chapel partly restored, one or two rather good but small brasses, a Renaissance pulpit, and a font dating from the reign of Henry IV. One of the late Lords of Ware Park, Henry Fanshawe, is remembered by a tablet of Renaissance design dated 1666, which is placed upon the wall near the Lady-chapel. While there are no great architectural monuments along this stretch of country, there is plenty of good and interesting work of a smaller character. In addition to that already mentioned, there is Chestnut House, a red-brick structure containing many portraits of historical interest. Hatfield College, and Churches at Chestnut, Broxbourne, and some of the other villages of more or less interest,

besides numerous examples of domestic work which will repay any time and study bestowed upon them.

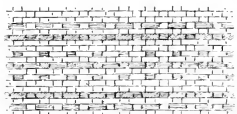
BRICK ORNAMENT.—II. COLOUR LINING, RAISED AND SUNK WORK, ETC.

One of the most beautiful and natural reliefs in connection with brick ornamentation far more so than the aimless intro-



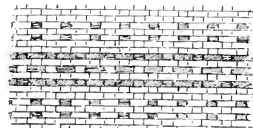
Double line relief pattern with frieze line centre.
FIG. 1.

duction of stone in a violent contrast of conflicting colour—is that of lining. Judiciously arranged, either in different colours—such as a grey with stocks—red, or the various tones of brown-coloured bricks, stocks with browns, reds, etc., far better results may be obtained than by the introduction of a foreign and unnecessary element in brick building. If carefully arranged with the more subtle toning distinctions of various



Double line relief pattern with frieze line centre.
FIG. 2.

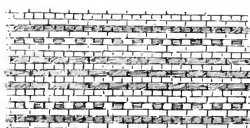
tints of brown, red, etc., the pattern being picked out also in a lighter or darker tone of the same colour, with sometimes a slight relief of grey. A far higher grade of real artistic merit is obtainable, producing at once a more refined and subdued composition, quite lacking any of those inharmonious notes caused by more violent contrasts; such as, for instance, a vivid red of startling brilliancy combined with the brightest of yellow stocks. Some knowledge or taste regarding colour is doubtless required, even for fairly successful work in these materials.



Double line relief pattern with frieze line centre.
FIG. 3.

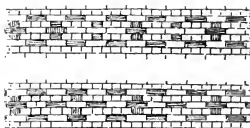
to say nothing of obtaining the best results possible. At the same time, a far higher grade of work might be produced in this branch of architectural art in general by the use of a little discrimination and bearing the above hints in mind. Simple lining effects in colour may be readily obtained, and that really without the slightest extra expense, simply by picking out the bands or patterns in the natural bonding by either of

the above-mentioned methods. Several such designs are illustrated by Figs. 1, 2, 3, and 4. Simpler lining patterns can be easily formed, if desired, merely composed of two or three



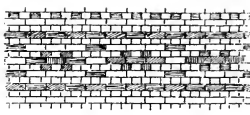
Double line relief pattern with frieze line centre.
FIG. 4.

lines, which will no doubt be readily enough grasped from the first four illustrations without separate figures. It should be specially noted that this style of work does not interfere with the bond, or involve cutting, in any way. Coming to a slightly more ad-



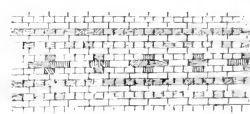
Simple colour relief pattern with diaper cross.
FIG. 5.

vanced stage by the introduction of diaper patterns, a little more care is possibly required in the setting, as shown by Figs. 5, 6, 7, 8, and 9. Another stage in brick ornamentation is that of alternated composite patterns, illustrated by Fig. 10. Such work can be used to advantage either continuously in frieze decoration, etc., or simply as a pattern-piece, as shown, forming a centre to



Simple colour relief pattern with diaper cross.
FIG. 6.

a gable or some other prominent feature which would otherwise present a monotonous blank space. Fig. 11 illustrates another simple composition. These patterns, however, invariably look far better paired and linked up with broken lines in a similar manner to that shown by Fig. 9. In illustrations 12, 13, and 14, various patterns of



Simple colour relief pattern with diaper cross.
FIG. 7.

double chainwork are shown. Lighter and narrower banding by this method, to meet various requirements, can be formed by means of a single chain alone. This point should be noticed from the latter illustrations

without separate ones. Exceedingly good combination effects may be obtained by the judicious arrangement of colour relief-bands with raised and sunk work, a simple pattern

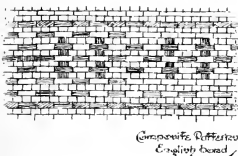


FIG. 8.

in this style being illustrated by Fig. 15, the variation of effects obtained in the same pattern with the two different methods being here shown. Composite patterns, again, in raised and sunk work, are capable of really beautiful results when carefully studied with

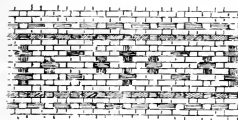


FIG. 9.

regard to correct relief, composition, and colour effects combined, as shown by the illustrations Nos. 16, 17, and 18. Regarding the two latter figures, it is well to note the value given to the composite patterns by the wider spacing as compared with the previous and other figures. With this style of ornament, the same as in any other, too much repetition of closely-set patterns merely tends to over-elaboration and equality of

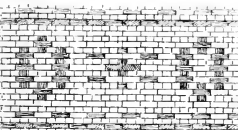


FIG. 10.

ornament—a result which is often as bad as, where not far worse than, no ornament at all. Carefully-set composite patterns, with the requisite blank spacing between, slightly connected up with toned, raised, or sunk bricks, in broken line, produce by far the best results, as seen. Fig. 19 illustrates a

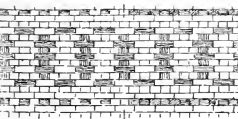


FIG. 11.

single and elongated chain pattern picked out in solid colour with recessed panels, producing another slightly varied effect.

Figs. 20 and 21 illustrate another more

advanced stage by two different patterns in sunk work introduced in projected panels. The latter may, of course, be left quite plain in solid panelling, if desired, or decorated with colour-reliefs instead of the sunk patterns shown. The pattern itself could also be projected slightly as a still further variation. This stage of solid and decorated panel-work, however, requires a section to itself, merely to partially illustrate the many possibilities of this branch. Other patterns—

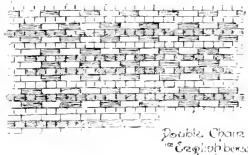


FIG. 12.

so well known, in fact, as not to require illustrating here—are the diamond and cross, formed in stepped fashion, or the diagonal, by running through the customary brick coursing. These two examples form practically the sole patterns and only method of "brick relief" or "ornament" at present. At the same time, even these possess possibilities in the way of fresh developments, which will be shown in a more applied manner in a later chapter.

The illustrations to this chapter have been

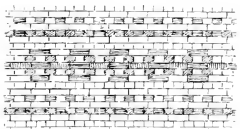


FIG. 13.

kept quite plain for the sake of simplicity; but it is well to note that the patterns can be still further elaborated by using various moulded bricks as indicated in Chapter I. By these methods, a larger degree of enrichment, variation, etc., might be still further introduced. Regarding the constructive side of raised and sunk work, also as viewed with respect to the bonding. A great deal can be done in this direction with a very slight amount of extra trouble beyond that involved by ordinary plain brick building, and that merely being incurred by a little more care

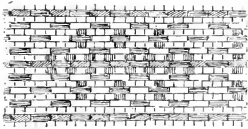


FIG. 14.

requisite in the actual setting of the projected or recessed bricks. These must, of course, be kept at a uniform level throughout any particular piece of work. As a rule, very little projection or recession is required to obtain the best results in light-and-shade effect on any average building—for instance, on three- or four-story structures—a $\frac{1}{2}$ in. to $\frac{3}{4}$ in. projection or recession being quite

sufficient to pick out a pattern and produce the requisite degree of ornamentation without coarseness. The latter effect being incurred if these dimensions are exceeded

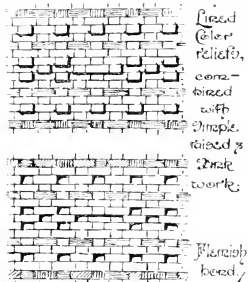


FIG. 15.

to any extent—unless this point has to be specially considered for greater heights than those mentioned above. With sunk ornament used in 9 in. work, the pattern would, of course, appear reversed on the inside. Here it would form either a good key for the plaster, or in some cases, where the inside is left in plain brickwork, it might very well be arranged to form an internal relief as well. With walls of greater thickness, it might be occasionally necessary to rough-cut recessed bricks to prevent

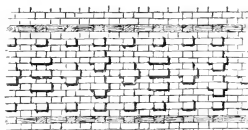


FIG. 16.

considerable displacement or contrivance with the bonding. With by far the majority of work, however, even this point can be got over by utilising a queen closer or half-brick for the recessed portion, making up the difference of internal space with a thickness or two of rough-cut tile, as the case may be. The latter would usually be found cheaper and more convenient than carefully cutting down the bricks to a required size. Thick tiles of narrow widths

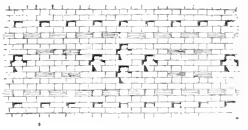


FIG. 17.

can also be usually obtained which would form a convenient size for adaptation to this work where a greater depth of shade, with consequent projection, might be desirable for ornament placed at some height. This system of using tiles would, of course, be just as useful for making up similar internal spacing formed by projecting bricks. These

points are worthy of study, although such particular treatment would really only be essential where, from a purely constructive view, it would be necessary to make every part of a wall uniform throughout. In a great deal of average work, with no excep-

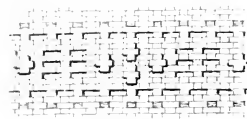


Fig. 18.
Combination of a half brick and a half brick.

tion, stress upon the slight irregularities by these methods of patterning, might very well be filled in with the mortar, or, in some instances, when running a free water, with a little extra mixture of sand. The above are all points which require allowance being made for, according to the nature of a pattern used, and whether the internal discrepancies involved might, in the aggregate, materially affect the strength of a wall at this point. Such as, by using closely set patterns in combination with some depth of course. That such, however, are well worthy of study, and due allowance being made for them, should be quite apparent. The proper study of brick ornamentation is quite an art in itself, although very little

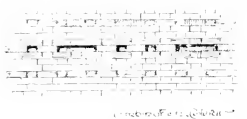


Fig. 19.

reference even to has been done in this direction.

There are not a few examples on every hand, to the extent of acres and acres of buildings in a city and town, possessing some vague attempt at doubtful "decoration" in an equally doubtful "ornamental" manner, by means of the introduction of various discordant pieces of stone or cement, grotesque in shape and totally out of proportion. A stranger to this planet might well think that brickwork itself was some novelty in building material just introduced, instead of having been the commonest constructive one in existence for many centuries, to the extent of some thousands of years. With such a wealth

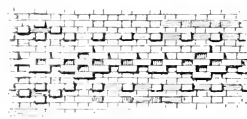


Fig. 20.
A half brick and a half brick, with a half brick and a half brick.

of ornamentation available to its construction, more effective and beautiful, than a natural method of an artificial one, subject itself to the how and goods effect. Natural brick ornamentation only requires proper study and treatment for its development to a much wider field than is at present possible at first sight, even to the average highly trained professional. It

would be quite possible to fill a whole volume with designs, compositions, variations, etc., in the sections treated here alone, which have merely been lightly touched upon, so far as space permits. In tracing out somewhat the variations, etc., possible, as applied to the same pattern, it has probably shown best how to deal with this system of ornamentation.



Fig. 21.

designs would doubtless occur also to others, included to give the subject errors of consideration, having some basis to work upon.

W. C. KERRY, Architect.

THE TEMPLE OF THE SUN, ROYAL GARDENS, KEW.

[WITH ILLUSTRATIONS.]

This building is, perhaps, the best of several erected from the designs of Sir William Chambers for her Royal Highness Augusta Princess of Wales, whose seat was at Kew. The Orange House and these Kew temples were among his earliest works. Though Chambers was, more or less, a student in the vagaries of the Chinese, yet, in the fashion, it has been thought that the Pagoda at Kew, which he built, close to the Thames, was due rather to the lack of taste on the part of his patrons than to his own initiative, which generally exhibited a sense of appropriate design, and this idea as to the origin of the Pagoda certainly obtains support from the refinement which distinguishes the Temple of the Sun and other like creations of Chambers. In his pencil drawings of these designs by Chambers appeared in 1763, illustrating their good proportions and elegant fancy. In 1772 his "Dissertation on Oriental Gardening" caused no little stir among the people of fashion and the adherents to the dilettantisms which distinguished the mode towards the end of the 18th century. It may be difficult, however, to regard this publication quite seriously, as Chambers, it will be remembered, was originally intended for trade by his father, a well-known merchant in Stockholm, and with this object he sent his son William on a business journey to China and the West Indies. This excursion enabled Chambers, the architect, to become personally acquainted with Chinese building, which had about this time furnished material for imitation design in England. Chambers, on his return to Europe, furnished commerce and became a pupil of Clérissier in Paris, and, having given up all idea of following mercantile pursuits, he afterwards resided in Italy, where he displayed considerable industry in the study of Classic art, which no doubt modified his earlier predilections in favour of Oriental extravagance. Carr, the famous architect of York, obtained for Chambers, on his return to England, an introduction to Lord Bute for the post of instructor in art to George III., then Prince of Wales. Hence the opportunities which soon followed at Kew and elsewhere at the outset of his professional career. The nobility emulated the fashion set by the Court, and casinos became essential in the pleasure gardens and park-like grounds of all persons of quality, as may be seen from Chambers's designs at Wilton and Tonbridge Hall, York, not to mention the most important structure of this class of the casino kind erected by Chambers, at a cost of something approaching £60,000, at Marino, Chantilly, near Dublin, for the Earl of Charlemont. Measured drawings of that building appeared in the BUILDING NEWS for July 30, 1909. The Temple of the Sun at Kew was erected in 1767, and its design may

be said to be based upon the Temple of Venus at Baalbek. It is of the Circular Peripteral kind. The Order is Corinthian, with fluted columns, and the entablatures are fully enriched in an academic and elegant way. Stone is only employed in the lower part, the building proper being executed in stucco, and the interior is plastered. The dome is covered with copper; over each column on the frieze are basso-reliefs representing lyres and sprays of laurel, which round the upper part of the cells are suspended festoons of fruits and flowers. Internally, the cells form a salon, originally richly furnished and gilded, but now whitewashed. In the centre of its vault, or dome, is represented the sun, and on the frieze, in twelve compartments, surrounded with branches of laurel, are represented the Signs of the Zodiac. In basso-relievo. Probably the stucco finish of the temple is constructed on a brick core, the walls of the cells being only about six inches thick. The effective contrasts furnished by the alternating curves of the cornice and entablature are very pleasing, and the windows are in this way left free of shadow, as the colonnade forms no sort of shelter. The weight of the superstructure is largely carried by the columns, which, owing to rigidity to the building, acting in some sense also as buttresses. The oxidation of years has given a beautiful green colour to the cupola, harmonising it well with the pale yellow of the stucco and the surrounding foliage of the gardens in which the temple now casually stands. When structures of this character are prominently placed, as this building is, without any reference to an architectural scheme or by way of environment, much of their advantage otherwise obtained is obviously lost, and in this way particularly the Temple of the Sun appears isolated and devoid of that particular importance which appropriate accessories alone can give. Consequently, at present, with all its excellent modelling and finish, the building is seen to a disadvantage, which is most unfortunate. This lack of appreciation on the part of the patrons in these days of increased recognition of garden architecture is all the more blameworthy, and it is entirely at variance with the historic importance invariably accorded to garden-houses from Tudor times till the days when this temple was built. A reference to such examples as the gazebo at Westbury Court, that at Beckington, with its stone-tiled roof, and to quote another instance, at King's Weston, Gloucestershire, and the one at Old Stewpond, calls to mind the rightness of this contention, which also obtains further confirmation by the exquisitely rich and well-designed Early Renaissance angle pavilions at Montacute in the terraced wall of the formal garden facing the park. Other samples of Old English taste in this matter are furnished by "the justice room," at the end of a garden vista at Severn, near Worcester; the garden temples at Blickling Hall, Norfolk, and Nun Moncton, York; Iford Manor and again at Charlton House, Kent. The celebrated wrought iron gazebo, copied to some extent from the timber trellage contemporary erections once so fashionable, at Melbourne, Dorsetshire, ought likewise to be mentioned in this connection. One and all, though so different in themselves, and so unlike Chambers's classical conception, emphasise the dominating importance of making all such erections part and parcel of a general scheme out of which, as a matter of fact, they ought naturally to grow, instead of being dotted about landscapists' grounds as if accident alone accounted for their employment. In Victorian days, leather-thatched rusticated wooden arbours were considered too often the only sort of garden buildings worth erecting, and, lightly valued in their origin, naturally enough they were esteemed so little as to become speedily the receptacles of rubbish, or left to harbour the dirt of neglect and the industries' multiplications of vermin. An excellent photograph of the Temple of the Sun at Kew is given by one of the folio plates in Belcher and Macartney's famous work on "The

THE TEMPLE OF THE SUN ROYAL GARDENS, KEW.

SCALE OF FEET

SECTION THROUGH
ENTABLATURE

DETAILS OF COLUMNS

SECTION
THROUGH
WINDOWSECTION
THROUGH
DOORPEDESTAL CAP
" BASE

STEP

PLAN OF
COLUMNMEASURED
& DRAWN OCT 1910
H. M. S. R. A.

MEASURED AND DRAWN BY MAURICE S. R. ADAMS, A.R.I.B.A.

Later Renaissance Architecture in England," where it is wrongly described as "The Temple of Eolus." The accompanying two sheets of measured drawings—the first yet published of this building, we believe—have been lent us by Mr. Maurice S. R. Adams, A.R.I.B.A.

THE COST OF LABOUR IN CONNECTION WITH THE ERECTION AND MAINTENANCE OF BUILDINGS.*

By R. M. KERRAN, F.S.I.

The quantity surveyor, when preparing a schedule of prices for measured work, or, in special circumstances, an estimate priced in detail of the cost of a proposed new building, is sometimes in doubt as to what he should allow for labour. He can readily obtain prices and quotations which will give him all necessary information with regard to the cost of materials; but the cost of labour is not ascertained so easily, for not only do the labour rates vary considerably in different parts of the United Kingdom, but the amount of work executed in a given time by equal numbers of workmen also varies according to local skill, or the local standard of what constitutes a day's work. It does not follow that the building contractor always meets with the same difficulties as the quantity surveyor when estimating the cost of labour. The successful contractor must of necessity frame his estimate on an accurate knowledge of the local wages rate, such knowledge being obtained from representatives of the different trade-unions, or by means of researches which are usually impracticable to a quantity surveyor. The contractor's foreman introduces leading mechanics, with whom they are well acquainted, at special wages rates, and these men generally manage to maintain in the execution of the contract a standard of progress which will insure their employers against loss. With reference to the varying labour rates, I have prepared what may be easily proved to be an interesting and useful table, showing some of the wages obtainable in the rates which are current at the present time in some of the towns in the United Kingdom. The towns named are placed according to their geographical latitude, working from North to South: London, Edinburgh, Dublin, and other important centres being printed in large type for ready reference. The extra allowance of 3d. per week named for masons' fixtures is generally in practice granted, not only in London in respect of ashlar work, columns, dressings, etc., I have been informed, however, of a case in which the claim was made unsuccessfully in connection with rubble walling. With regard to carpenters and joiners it is possible that their rate of wages may be increased in several places in the course of this year. A notice has been given, which does not take effect in London till July 1st, demanding 1s. per hour, i.e., an increase of 19d. per hour, 10d. per week for overtime, and a reduction of summer hours from fifty to forty-seven a week. Anyone who is fond of retrospection will do well to see a copy of the BUILDING NEWS of July 22, 1881, which contains a complete statement showing the number of men working in the trade and the rates of wages for masons, carpenters, and labourers in brick and stone work in Great Britain. In that year, bricklayers and masons were paid 9d. an hour in London; the summer hours being 52½ per week, and the winter 47 on the building of 1882-3, and the winter rate has since, at present, been increased by 1d. per hour, i.e., 19d. per week. The present rate of 10d. an hour is an increase from 9d. to 27½ per cent. was made in August 1909, and the wages of the masons. This increase may be said to affect the cost of erecting a building, and the percentage of materials to the whole, but it is not so subject; but I understand that in Scotland contractors in London were already paying their own masons, that is, the masons' foremen, about 7 pence per hour. With I am prepared to speak of the wages of a large price with regard to the

carmen in the direct employment of the leading building contractors, I feel compelled to take this opportunity of stating that in my opinion the men employed by carriage contractors are, as a rule, unnecessarily rough; and it would seem that many of them need to be taught how to care for their heated and usually over-worked horses, and to handle them more gently. Although these men work long hours—72 per week—and, consequently, are not always in the best of tempers, that cannot exonerate them from blame if guilty of neglect or cruelty. Looking at the table of wages rates which I have prepared, one can not help feeling astonished at the low rates obtaining at the present time in some of the country towns and throughout Ireland. The want of uniformity, which is most apparent, has long been regarded as a powerful factor in the depopulation of rural districts and the smaller towns, where wages are from five to ten shillings a week less than those which may be earned in the large centres. A report was issued in February last by the Labour Department of the Board of Trade, giving the "Standard Time Rate of Wages in the United Kingdom" at January 1 last. It also gives the summer hours of labour (exclusive of overtime), and on studying the figures it will be found that, as a rule, the number of hours worked is greater in those localities where the lowest rates are paid. I have not given in my table of wages rates any information as to the number of hours worked in summer and winter; but for all practical purposes in connection with estimating, I think the following figures are sufficient:—

	Average number of hours worked per week per annum:—	
	Winter (12 weeks.)	Summer (12 weeks.)
London (all trades, excluding overtime).....	50	45
Country (all trades, excluding overtime).....	55	50

It may be of interest if I state here that the following rates are paid in London in connection with reinforced concrete work:—Labourers, 7d. per hour (a few at 7½d.); gangers—one to about thirty labourers—3d. to 10d. per hour; smiths, 10d.; carpenters erecting casings and centering, 10d.; and foremen carpenters, 1s. to 1s. 3d. per hour. Building contractors and their doughty foremen are splendid organisers and controllers of labour; consequently the cost of erecting a building is reduced as nearly as possible to the minimum in the case of the lump-sum contract. I refer, of course, to a contract based on an exacted amount of the cost of all labour and materials, each amount having been tendered in a bona fide competition. On the other hand, the cost of erecting a building approaches the maximum when labour and materials are paid for as day work. The following table has been prepared to show at a glance the advantages of the lump-sum contract, and the approximate percentage of the cost of labour:—

	Cost of labour shown in table as a percentage of the total cost of the building:—	
	Total Cost	Percentage
A. Lump-sum contract for the erection of an ordinary brick building with stone dressings. Estimate based on carefully prepared list of quantities and tendered in competition.		
Extra	£70	9.00
Omissions	200	
Net cost of variations	50	
	10,000 (say) 10	
B. A similar building, measured in the course of erection, and valued on a schedule of competitive prices. (There is usually more laxity allowed in the form of contract than in form A.)		
	12,000	15 to 20
C. A similar building, erected entirely as daywork, all materials and labour being paid for in accordance with weekly vouchers. Labour rates and the prices of the principal items of materials embodied in the contract.		
	15,000	55 to 60

It will be noticed that the percentage of the cost of labour increases with the introduction of day work. Under Contract "A" the building owner receives the full benefit of the organising and energising abilities of the contractor. In the case, however, of Contract "C," it is not to the contractor's immediate advantage to push forward the work with the utmost vigour, unless he is anxious to remove his plant. As a matter of fact, the longer the workmen are employed in day work, and the greater their number, the larger is the contractor's profit, seeing that he receives a premium varying from about 5 to 15 per cent. on all wages paid in that connection. The table is, of course, theoretical; but I am convinced that the figures can be supported by general experience. A salient point in connection with the lump-sum contract is that the contractor, in the absence of any special arrangement to the contrary, stands to gain or lose on the amount of his estimate, no matter what fluctuations may take place in the wages rates of the workmen. In equity, however—putting aside the question as to what should happen in the case of a decrease—it would appear that some allowance should be made to the contractor when he is compelled to make a rise in wages under the circumstances which could not be foreseen before the date of his tender. This allowance would have to be arrived at by ascertaining in the first place the value of the measured work executed after the rise in wages takes effect, and then adding a percentage on the proportion of the cost of labour, differentiating between mechanics and labourers. Some idea of the process may be gathered from Laxton's "Price Book" (pages xxvi, xxviii). It should be observed, however, that Laxton appears to have overlooked the factor of the mechanic's labourer. For instance, in his example of plasterers receiving an increase of 3d. per hour over a rate of 11d., the addition should be 1.22nd of the proportion of the account attributed to plasterers' labour only, that is excluding materials, plant, and plasterers' labourers. In this matter every contractor should, of course, be dealt with on its own merits, as the proportionate value of labour to materials and plant varies in each trade according to the nature of the materials and the architect's designs. The following proportions might apply to ordinary public buildings or first-class residences:—

Trade	Approximate Proportion of the Cost of Materials and Plant		Approximate Proportion of the Cost of Labour	
	per cent.	per cent.	per cent.	per cent.
Bricklayer	67	21	9	5
Mason	40	55	5	5
Slater	80	15	5	5
Carpenter	70	27	3	1
Joiner	77	62	1	1
Smith	80	15	5	5
Plumber	75	16	9	5
Painter	80	15	14	14
Glazier	85	15	14	14
Painter	80	56	4	4

In seeking information in connection with the above proportional values, I found that in Laxton's standard work on "Quantity Surveying" (page 467, fifth edition), the Bricklayer's trade is divided into 75 per cent. for labour and 25 per cent. for plant and materials—evidently a clerical error; one which in no way disturbs my confidence in the book, and which can be adjusted by reversing the proportions. There may, however, be some surveyors present who consider that Laxton's proportions should remain as now printed, in order to meet the "slowing down" on the part of bricklayers, a subject which was discussed here in 1901, at the reading of the late Mr. Thomas Blashill's valuable paper on the then "Condition of the Building Industry." I would recommend everyone who is interested in the cost of labour to read that paper, and the reports of the discussions which followed. I have done so myself, so doubt absorbing many ideas which I shall reproduce this evening with what an unfriendly critic might describe as "singular fidelity." In reinforced-concrete buildings the cost of labour is something between 50 and 60

per cent. of the total cost of the structural work as compared with an approximate 40 per cent. in the case of ordinary brick-and-stone buildings. There is very little difference between the cost of the finished reinforced concrete and that of brickwork, bulk for bulk, and the great saving effected by the addition of reinforced concrete is, of course, due to the extraordinary thinness which is permissible in walls, piers, &c. A brief reference may perhaps be made here, for the benefit of prospective building owners, to certain recognised rules governing the cost of both labour and materials; rules which, if followed, will place the uninitiated in a fair way to obtain an estimate approximating to the minimum cost of any proposed new building, and enable him to have the works carried out for a sum within a reasonable margin of the estimated amount:—

1. Employ a properly-qualified architect who, while being a successful man, can yet give personal attention to the work.
2. Provide for compliance with the requirements of the Building Act or of the local authorities, and respect the legal rights of adjoining owners.
3. Specify in full the nature of the building materials, and thus save the cost of carriage, and at the same time derive the utmost value from local labour.
4. See that bills of quantities are prepared by a properly-qualified surveyor.
5. The building owner's exact and final requirements should be embodied in the architect's drawings and specification before they are handed to the quantity surveyor.
6. Employ a foreman from builders of sound financial standing and of good reputation.
7. The builder should be called upon under the terms of the contract to make good all damage to the building or to the adjoining property, to insure against loss by fire, and to provide for all risks and responsibilities enforced by the various Acts of Parliament and any such laws as may be hereafter accepted as current in each trade for competent workmen.
8. Employ a clerk of the works whose integrity and other qualifications are undoubted, and pay him a salary worthy of his position of trust.
9. Avoid variations; they are expensive, and usually prevent the work being completed within the period specified in the contract.

With reference to the responsibilities enforced by the different Acts of Parliament, I understand that the coming Insurance Act will in no way alter the law relating to accidents, and that, therefore, contractors will continue to insure against injuries to their persons and to the property. As to the responsibility for the payment of fair wages, I may refer here to a circular which was issued to various councils in September last by the Local Government Board, setting forth the clauses recommended for general use in Government contracts by the Fair Wages Advisory Committee. Quoting from the circular: "It appears to the Board that the policy adopted in the case of Government contracts should be followed in the case of all contracts for the execution of works, or the supply of materials, which are entered into by local authorities, or by or on behalf of any committee wholly or in part appointed by a local authority. Whilst they are aware that many local authorities specify in their contracts conditions to be observed by the contractor as to the rates of wages, and other matters as affecting persons employed by him, the Board think that in every case the authority should give the matter careful consideration with the view to the introduction in the contracts of clauses on the lines of those inserted in Government contracts." Of the clauses referred to the following is the most important:—

"The contractors shall in the execution of this contract observe and fulfil the obligations upon contractors specified in the resolution passed by the House of Commons on the 10th March, 1909—viz., 'The contractor shall pay rates of wages to his workmen at least equal to the rates of wages for those commonly recognised by employers and trade societies for, in the absence of such recognised wages and hours, those which in practice prevail amongst good employers in the trade in the district where the work is carried out. Where there are no such rates and hours recognised or prevailing in the district, those recognised or prevailing in the nearest district in which the general industrial circumstances are similar shall be adopted. Further, the conditions of employment generally prevailing in the district in the trade concerned shall be taken into account in considering how far the terms of the Fair Wages Act are being observed.' The contractor shall be prohibited from transferring or assigning directly or indirectly, to any person or persons whatsoever, any portion of his contract without the written permission of the Department. Subletting, other

The following Comparative Statement taken from "London Statistics," vol. xxi, issued by the London County Council shows the Weekly Wages and Hours of Labour in certain Trades in London, Paris, Berlin, and Brussels:—

Trade.	London (1909).		Paris (1905).		Berlin (1906).		Brussels (1908).	
	Wages per week.	Hours per week.	Wages per week.	Hours per week.	Wages per week.	Hours per week.	Wages per week.	Hours per week.
Bricklayers	43.9	50	38.5	60	39.1	53	23.9-27.7	66-66
Carpenters	43.9	50	43.2	60	39.1	53	23.4-28.4	66-69
Joiners	43.9	50	38.5	60	31.11	52	23.9-27.7	66-69
Plumbers	45.40	50	38.5	54	32.1	53	23.9-27.7	66-69
Painters	35.5-37.6	50	38.5	60	29.9	53	21-24.10	66-69
Labourers (Bricklayers)	29.2	50	24.0	60	25.5	52	18.6-19.4	66-69
Turners	39.0	48-54	35.7	60	37.28-40.10	52	21-26.9	56-60
Fitters	39.0	48-54	33.7	60	30.0-31.0	52	21.5-26.6	56-60
Smiths	39.0-48.0	48-54	33.7-40.10	60	30.0-31.2	67-69	22.5-26.6	56-60

The figures speak for themselves, and it is evident that the London mechanics occupy a very favourable position.

than that which may be customary in the trade concerned, shall be prohibited. The contractor shall be responsible for the observance of the Fair Wages Act by the sub-contractor.

A schedule of labour rates should be attached to every form of contract, the rates should be among those which must be actually paid by the contractor. In the case of a lump-sum contract the schedule of labour rates to be allowed to the contractor for labour in day-work on extra works should contain a clause of the following description:—

"The above rates are those which are understood to be the standard rates of wages appertaining to the various trades in, and to be actually paid to the men employed. An allowance of 10 per cent. will be made to the contractor upon the rates so paid to the men, to cover profit, superintendence, and the use of all tools, sharps, scaffolding, &c. In the event of any changes being made in the wages of the workmen during the continuance of the contract, corresponding changes will be made in these rates."

In many cases the rates can be verified by applying to the Master Builders' Federation or to the surveyor to the local authority of the district concerned. I may here draw attention to the February number of "The Board of Trade Labour Gazette," which contains an interesting article dealing with the minimum rates of wages required to be paid to contractors carried out for public bodies in Belgium. It appears that the minimum rates prescribed there for mechanics vary from 24d. to 43d. per hour—modest amounts which no doubt insure a living wage under local conditions. There is little that is new in the modern system by which the payment of fair wages is encouraged by the State. As you are aware, the wages were at one time regulated in England by Acts of Parliament, and according to Froude, with excellent results. It is recorded in his "Reign of Henry VIII.," that the working-classes of this country were "in a condition more than prosperous." The wages at that time were fixed "at a maximum," but it appears that this point of the law was not rigidly enforced, and at a later date a sliding-scale was introduced. Froude refers to it as follows:—"On the one side Parliament interfered to protect employers against their labourers; but it was equally determined that employers should not be allowed to abuse their opportunities; and this directly appears from the 4th of the 5th of Elizabeth, by which, on the most trifling appearance of a depreciation in the currency, it was declared that the labouring man could no longer have the wages assigned to him by the Act of Henry, and a sliding-scale was instituted by which for the future wages should be adjusted to the price of food." I must now deal with my subject so far as it relates to the maintenance of buildings. Whatever may be the defects which are discovered in the form of contract under which a building is erected, the costs and penalties of such defects are confined, as a rule, to that particular building, but in contracts for works connected with the maintenance and repairs of the numerous buildings under the control of Government departments, county councils, and other public bodies, the matter becomes more serious on account of the recurrent nature of the work and the consequent necessity of meeting with equal recurrence during the period which each contract is in force, the same results from errors in the agreed terms or prices. In the

first place it is most essential that the schedule under which the work is executed and paid for should be sufficiently comprehensive to allow for the admeasuring of all frequently recurring items of repairs in each trade. A good example is the War Office schedule, which was compiled under the supervision of a master of detail and tabulations, Mr. J. T. Hunt, the author of the "Surveyors' Handbook," with which we are all familiar. I think it may be admitted that a staff of experts should be employed on the work of compiling a schedule of any importance, as no man can be master of the details of every trade, and the schedule should be at once a specification and price-book. It should, of course, be amended from time to time, striking out obsolete items, bringing the prices up to date, and embodying any new items which may be reasonably suggested by the surveyors who measure up the work and check the prices in the accounts. In a properly-conducted maintenance contract the expenditure incurred over several years would show the cost of measured work and day work in something like the following proportions:—

Measured work, covering 65 per cent. of the total materials and labour expenditure.

Day work (on jobbing) (Materials 25 per cent. of the total expenditure, Labour 25 per cent. of repairs.)

Here again, my mission is to point out that day work, although inevitable, should be restricted as much as possible, and in no instance should the cost be allowed to exceed 50 per cent. of the average annual expenditure. A case was recently brought to my notice in which various works of maintenance were carried out at a certain department under a schedule at a cost of about £4,400, and of this total the day work charges did not amount to 5 per cent. No doubt this is an unusually low percentage, but it shows what may be done under proper management. Surveyors and clerks of the works have to be very wide-awake if they wish to hold their own in a maintenance contract, for builders seize every opportunity to do what may be termed "good business," and they are not to be blamed, except when "good business" leads to "sharp practice," and "sharp practice" to actual dishonesty. Thus, in falling into the line of least resistance, it sometimes comes about that orders are given for work to be executed as day-work instead of measured work. And there are many temptations to do this in contracts in this way. In decorative work, for example, if the painters' work is done as measured work the clerk of the works has to be on the spot in order to see that the specified third coat of paint does not occupy the place of the second; but in day work, while still supervising, he need not put himself to much trouble, for the contractor's foreman and painters will be prepared to make a long job of it, and will put on as many coats as are specified, all labour and materials being paid for. It is obvious that in measured work which is paid for at schedule prices covering the cost of all materials and labour, the contractor's foreman, if he wants to show a profit, must hustle the workmen and contrive to finish the job at the least possible cost to his employer. The desire to do everything as

The rates shown in this Table are, so far as can be ascertained, those which are actually paid to the different workmen.

* A report of this meeting appeared in the BUILDING NEWS, Dec. 22, 1911, and our own comments thereon in our issue of Jan. 5, 1912.

stitution Library," wondered what sort of man was the author of a book called "Talks on Manures." Well, I think he must have been something like this landlord of mine who, at any rate, could have written a companion volume, entitled "Confidential Chats on Sewage Disposal." In no way is the cost of labour affected so much as by the efficiency of the labourer. If the labourer is efficient, there are plenty of efficient men to meet all ordinary requirements, it seems to be the fact that the percentage of inefficient men in the labour market is steadily increasing. This is no doubt largely due to the gradual collapse of the old-fashioned system of apprenticeship, and to the ease with which men can get educated and trained in the United States. On the whole, workmen do not take the interest in their work that they used to do. This is especially noticeable in large

memorandum drawn up by the Practice Committee and submitted to the Council in 1907:

Questions have arisen as to the effect of a building contract under the form of Contract and Conditions recommended for use by the R.I.B.A. These documents were settled in their present form in 1903 in consultation with the Institute of Builders and the National Federation of Building Trade Employers of Great Britain and Ireland.

The terms previously in use were settled in 1879, and it is not considered proper to alter them.

On the settlement in 1903 this was altered at the instance of the Institute of Builders. Certain matters dealt with by Clauses 4, 9, 16, 19, and part of 20, which related to the architect, had been introduced into Clause 30 which have been held to destroy the effect of a certificate given by the architect. Education of Building Trade Employers of Great Britain and Ireland.

It has been held by the Court of Appeal, in the case of *Colony v. Goddard*, L.R. Vol. 2, p. 26, that the effect of these alterations is not only to deprive the architect's certificate of all finality as between building owner and the contractor, but it has also been held by the Court of Appeal, in the case of *Goddard (building owner) v. Ferguson (architect)*, that an architect who has given a certificate, which is subsequently challenged by the building owner in an action brought by the latter to recover the amount so certified to be due to him is liable to repay to his client the building owner the costs incurred by the building owner in giving judgment. The learned Official Referee based his decision upon the ground that the architect, in his position of agent for the building owner, is held to have contemplated that if he gave a certificate the builder would one upon it, and that the building owner might resist and incur costs in so doing, and that the architect, in giving the certificate, contemplated the architect at the time he undertook to act as such for the building owner, the architect contemplated the possibility of giving a certificate subsequently held to be inaccurate or excessive.

The decision is said to carry with it the conclusion that the architect, acting under the present authorised form of contract is no longer in the position and clothed with the immunities of a quasi-contractor. It would, therefore, be following that, under similar circumstances, an architect no longer owes a duty of fair and impartial treatment to the building owner.

The position as above sketched raises very important questions, not only with regard to the position of the architect, but also as to the position of the building owner and building contractor respectively.

SUB CONTRACTS.

The average building owner generally imagines that the building contractor is the direct employer of craftsmen in all trades. Indeed, this is implied in our Conditions of Contract. As a matter of fact, we know that in modern contracts it is not unusual to sublet cutting, plastering, plumbing, slating, etc. It must be acknowledged that in Clauses 20 and 28 this matter is dealt with in a manner which meets the difficulty almost. Indeed, it seems to hold the balance admirably between both parties. Clause 20 may be regarded as safeguarding the contractor, and Clause 28 the special tradesmen. Nevertheless, the provision for direct payment to the latter by the building owner is an awkward circumstance, which may lead to unexpected decisions in a court of law. The case of *"Crutwell v. the London County Council"* is a case in point. My own practice is to nominate the special tradesmen, and to fix the net amount to be paid to them. They are made to understand that they can only look to the building contractor for payment, and are solely liable to him.

In the present case, the building contractor's contract, that he must pay these special tradesmen a full such amount as I may order from time to time, and the amounts so ordered are not included in any payment to him by the building owner until he the contractor can produce evidence that they have actually been paid. The case of *"Crutwell v. the London County Council"* is sufficient illustration of the position, and the arbitrary nature of the present provision.

ARBITRATION.

Perhaps the most serious defect of these conditions is the provision for reduced arbitration. The need of more agent for the building owner. He is deprived of judicial powers. It is a position which we think to quote again from the memorandum referred to "unfair to the contractor in the long run to the detriment of the building owner, dangerous to the public, and derogatory to the dignity of the profession." There used to be a clear distinction in the relations to the building

owner, before and during the carrying out of a contract. In the first place, we were his expert advisers in determining what forms the realisation of his desires should take, and his agents in drafting these forms for the purpose of instructing the building contractor. So soon as a contract was entered into between the parties, to our duties as agent to the building owner in superintending the work was added the honourable one of arbitrator upon points of dispute between him and the building contractor. In the carrying out of a building contract, innumerable points of difference may, and, in fact, do, arise between the parties' questions as to interpretation of the drawings and specification, and as to the quality of materials and workmanship. There are infinite grades of excellence in all kinds of work, and the architect has to decide from time to time whether the grade contracted for is supplied. As to whether a certain piece of work has, or has not, been done is a question of fact, but as to whether it has been done properly is a matter of opinion, and in giving his opinion the architect is bound to exercise judgment as between the divergent views of building owner and building contractor. Is it not absurd and unreasonable that because one party or the other is dissatisfied with the architect's judgment, a specially appointed arbitrator must be called to decide between the parties? It is clear in mind that the building owner selects the architect, and that the contractor accepts him, and is not bound to enter into the contract if he distrusts the architect. In the old form of contract, our final certificate was given this character of an award from which there was no appeal (except on grounds of fraud or collusion) by either party. On the whole the arrangement worked well, and it prevented a great deal of contention as between building owner and building contractor. In the present form no decision of the architect binds either party, and certainly not the final certificate. The architect is reduced to the position of mere agent to the building owner, and as such may be sued for exercising his judgment in a way which may not be endorsed by the arbitrator. In spite of this there are those who assume that the architect who does his duty fairly and reasonably need not fear the perils of the law; but a case such as that of *"Lanning v. Davis"* scarcely inspires confidence in that comfortable belief. Nevertheless the recent *Leicester* case seems to show that we are not safe even when our final certificate is an award, and that, failing the building contractor, the building owner is left in a helpless position in respect of alleged defects or deficiencies in the work.

And let me remind you (as Mr. E. T. Hall has pointed out) that in this case the R.I.B.A. was not used, and I gather that the architect's certificate was in effect an award as between building owner and contractor. On the other hand, the R.I.B.A. Conditions do not protect us, as witness the case of *"Ferguson v. Goddard"*. We are shot at from a different direction, but the effect is the same. The position is one of great difficulty; for it seems we can never be certain how far we can be made liable for any act or alleged default under a contract. Failing the practicability of immunity, there is as far as I can see, but two courses open to us. I.e., either to restore our position as sole arbitrators (which gives no measure of safety), or to employ, pay, and be responsible for, the clerk of works, and to insure against our responsibility at Lloyds or elsewhere. We should, however, have to raise the amount of our commission to meet the extra cost to us.

MR. R. L. HARRISON.

Chairman, in proposing a vote of thanks to the authors of the three papers submitted for discussion, said that he was responsible for the legal side of the R.I.B.A. Conditions of Contract. These had taken five years to make. He claimed that they were good at the time, and they were not bad now. That they needed modernising was not improbable. But he did not think the Institute could ever get a form of Con-

ditions of Contract which would not involve some discussion and disagreement. With regard to the cases quoted by the authors of the three papers, he had not felt particularly horrified. Mr. Edward Greenop had dealt with ten cases, with seven or eight of them about ten years. One of these, about the recovery of architects' fees, and another about the custody of the drawings, might be eliminated from the present discussion, because in the first-mentioned case the architect, the man of art, took upon himself the function of financial adviser, and the other dealt with something other than a new responsibility. The next case, *Keyes v. Trusk and Sons*, and *Wells* was the one about a mural painting. Here the architect specified a certain cement rendering. The case was that during the progress of the work some other material (lime plaster) was for economy's sake substituted. It had struck him, why did not the architect say to the client, "I specified something which, if allowed to dry, may be painted on; but if for your own ends you change my arrangements, I cannot accept the responsibility?" The next case taken (*Lanning v. Davey and Salter*), which was for negligence, throws no new responsibility on the profession, and could not be said to have created a precedent. The unfortunate architects in this case had the misfortune to meet at first a jury both stubborn and stupid. Leicester Board of Guardians v. Trollope referred to a £100,000 job, which took three years to complete, and which was attended with infections hospital with nine separate buildings all alike. The architect had made a very ingenious arrangement, by which the floors were to be isolated from the damp soil; upon that isolation depended their very existence. The architect admitted in the witness box that during twelve months he had visited the works ten times. Mr. Justice Channell gave judgment against the architect on the ground that he had not seen to the proper execution of the lay-out of these floors. The defendant no doubt thought that he had a first-class clerk of works. But the latter let him in. The architect had never asked for any part of the work to be opened up for his inspection. The builders, however, had since taken over a large part of the damages. With regard to the employment of sub-contractors, the practice just described to them by Mr. Saxton Spall seemed a perfectly sound one, provided that the contractor is himself a man sufficiently solid. The architect under such circumstances has no responsibility. The liability of all professional men had been much emphasised latterly. The only safeguard, so far as architects were concerned, was a more strict attention to the business side of their profession. He himself had an architect friend who would be quickly ruined through his unbusiness-like methods, if he had any practice. The habit he would recommend was for architects to put into writing any instruction they might receive. In many, if not most, cases the clerk of works is at the bottom of the trouble. It had often occurred to him that the Institute might organise a kind of guarantee fund. The only sure remedy, however, seemed to be for the architect to have his own clerk of works, and to meet the consequent cost by increasing a higher fee. Architects must not forget that all professional men are servants of the public. Consequently, it is dangerous for anyone representing them to take any steps of reform not in the interests of that public. The architects are agents, and as such are liable to be called to account for any neglect by the servants of the clients. Personally, he was not sure that the architect did not serve his client better if he did not occupy the position of quasi-arbitrator. With regard to *Robins v. Goddard*, and *Goddard v. Ferguson*, he would say, after a careful consideration of the case, that if the building owner had had no remedy from anyone it would have been a scandal. Concerning *Chambers v. Goldthorpe*, he was not at all sure that the decision was really the charter for architects that it was generally supposed to be. It certainly was not a unanimous decision in the Court of Appeal, where Lord

Justice Rorer, one of the most distinguished lawyers of his time, differed from the others. Mr. Harrison said he was prepared to admit that in drafting the Conditions of Contract they had made a mistake as to Clause 30. At the time they had believed it would bear only one meaning. But to make any change now would have a far-reaching effect. When the Conditions were being formed the builders said they would come into line only on the condition that everything was referred to an outside arbitrator. The architects conceded the principle, provided that they were still left masters of the job. If they altered that clause, the public would ask, "Are you altering it for our benefit?" It was for the Institute to decide whether, in the changing attitude of the public, such a course would be a wise policy.

MR. W. H. ATKIN-BERRY.

In seconding the vote of thanks, said he hoped he would not be detracting from the praise due to the authors of the three papers if he argued that they scarcely justified their title of "The Newer Responsibilities of Architects." He had very much to say in them anything that was very new in the way of responsibility. They might certainly have been called "Some of the Responsibilities of Architects." That fact was best illustrated by the cases brought forward by Mr. Greenop. The case of Findlay v. Roques and Carvell was about something outside the province of an architect. It was unwise to form an opinion upon that rare wording of a judgment, for one must put oneself in possession of all the facts and details. Often these judgments were based upon one particular point. The next two cases mentioned by Mr. Greenop did not involve any new responsibilities either. If an architect fails to do what he is set to do, it is only reasonable to suppose he will ultimately be held responsible for any subsequent failure. In Lanning v. Davey Walker there was a miscarriage of justice. But to that everyone was exposed. Furthermore he gathered all the rights in the end. (Voice: It killed the architect.) So there was nothing in that case either to show a new responsibility. The Leicester Board of Guardians v. Trollope seemed to occupy a very different position. Mr. Harrison had not, in his opinion, quite satisfied those present as to how architects were in future to protect themselves against an action of that kind. The architect may take every possible precaution, and yet through some small devilry on the part of somebody else, something goes wrong. Nevertheless, the architect is held responsible while the builder escapes. C. P. Roberts and Co. v. Hickman and Co. was a case in which the architect had withheld his certificate under the influence of the building owner. If the architect does such a thing as that, he must take the consequences. As to Mr. Greenop's contention that this decision was an entire reversion of Goddard v. Robins, this was, in his opinion, not so. Again, if the architect gives a certificate in a careless manner, surely he is responsible to the owner. In Crittall Manufacturing Co. v. L.C.C., one must ask oneself what course is an architect to take in putting in hand work which he wishes the sub-contractor to carry out. The course which Mr. Saxon Snell has just recommended to them might be followed with advantage. But he would like to know if that would defend the architect, and whether it gave the architect and building owner security. If it does not, what other course is open? Mr. Snell had seemed to hold out an olive branch in his plea for greater simplicity. The present tremendous elaboration of agreements and contracts undoubtedly did create suspicion in the minds of the public. To give particulars of certain things is to run the risk that the things left out may be of still more importance. It would be very desirable if there could be greater trust between the parties instead of their being antagonistic one to the other.

MR. W. W. WOODWARD.

agreed that really there was no new responsibilities. Fourteen or fifteen years ago an

architect was just as responsible to his client as he is to-day. But what has arisen is a greater desire on the part of clients to bring into the law courts those differences which used to be settled outside. To fight a case now is a very serious, expensive, and perhaps ruinous thing. One very recent case was before the Official Referee, for thirty-one days. He might say that the Referee had conducted it with an acumen and a desire for fairness which was most satisfactory. It had been suggested an architect should explain the Conditions of Contract before using them; but he has too much to do already. The R.I.B.A. Conditions failed in one important respect, and that was with regard to sub-contractors. There is no clause which gives him power to withhold payment from the contractor until the latter can show the receipt of the sub-contractor. The Practice Committee were, however, dealing with the point at the present meeting. The Critical case rested on the fact that the general contractor failed before he had made the payment. The sub-contractor recovered from the L.C.C. Then there were such points as to how far an architect was able to pledge the credit of his client, and how far he was allowed to certify additions without the consent of the client. His own belief was that an architect was empowered to order Extras to any extent he liked so long as those Extras are not detrimental to the building itself. In practice many architects did order considerable additions without the authority of the client. Mr. Woodward said that if he were a contractor he would not under any circumstances sign a contract where the architect was left sole arbitrator. Human nature was human nature, and the architect must often wish not to have to say he has incurred £1,000 or £2,000 in way of Extras. There is in consequence a risk of bias. The Practice Committee of the Institute had been for some time engaged in the remodelling of the Conditions of Contract, and in the consideration of that important matter—the scale of charges. It was very necessary that the profession should try to get rid of the present ruinous litigation.

MR. DOUGLASS MATTHEWS

contended that when one contrasted the architect's position forty or fifty years ago with what it was at the present day, there were many new responsibilities. In those days the builders did their very best work. There was nothing like the present supervision, and yet they acted fairly to the building owner. Nowadays they knew that the builders were in all probability not practical men at all, but only good organisers. That fact is in itself a great responsibility, for architects are at their mercy. Neither do workmen now take the old interest in their work, the workmen of to-day and of forty years ago being very different people in that respect. For the consequent carelessness the architect is held responsible. Some clerks of works are excellent men; others are accountable for much of the bad work. If the architect cannot be entrusted by the employer it is a serious thing. The plan usually adopted is that he should be a go-between for both parties, and trusted by both.

MR. LOVELL

said that at the recent International Congress of Architects in Rome there were references to this question. In France the sub-contractor almost entirely disappears, because each trade has its own separate contract. In Italy the architect is practically a contractor himself. In Spain and in South America there are two architects appointed, with a third to act as arbitrator. His own idea was that it was an exceedingly difficult thing to determine that the architect was anything more than an agent of the building owner. That there should be somebody in the nature of an arbitrator seemed only right. The trouble usually seems to spring from the clerk of works. He would suggest that the clerk of works should come from the architect's own office; this would ensure a better class

of work, and would also afford an excellent training for the young architect.

MR. H. D. STABLES WOOD

thought that architects ought to consider the public, and not let them think that the profession was trying to safeguard itself too much. An architect's responsibilities were the interests of his clients. The contractor's responsibilities ceased with the issue of the final certificate; but not those of the architect.

MR. G. R. BLUNCO WHITE

(barrister at law) suggested that architects should secure themselves with the client at the beginning of the job, by telling him that the plans prepared were only provisional, and might need revision during the progress of the work. Unless some such course is taken, the architect has no authority to make any deviations. The conclusion to be drawn from all that had been said in connection with the papers was that until the revised Conditions of Contract are ready every architect should read through the existing form with extreme care, and satisfy himself that he personally approves of each clause. If there is one he does not approve of, he should change it.

Mr. Alvin Munby, Mr. G. Ernest Nield, Mr. Douglas Wood, and Mr. Matt. Garbutt further contributed to the discussion.

MR. MAX CLARKE

remarked that it was quite possible for the architect to protect the sub-contractor by inserting a clause empowering the architect to see the general contractors' receipts for payment. In the Leicester case there were undoubtedly great variations from the original plans. Furthermore, the architect admitted that he had not seen any of the flooring. His own suggestion for the heading of the three papers submitted was "The Greater Difficulties in the Carrying Out of the Architect's Duties." The responsibilities were the same; but the complexity of the work was quite different, as for instance in the number of the sub-contractors. Again, all materials now require careful supervision. It would appear as if architects ought to do one-quarter the work they do at present, and be satisfied with the proceeds. In the matter of employer's liability and workmen's compensation, the Institute Form needed bringing up to date. However, he thought they were making a great deal too much trouble over the Conditions of Contract, and that they were not paying enough attention to the carrying out of their buildings. In fact, they should talk less and do more.

PROFESSOR REGINALD BLOMFIELD.

In putting the vote of thanks, admitted that he felt rather more fogged at the end of that evening's discussion than he was at the beginning. In his own practice he did not, as he believed, have any sub-contractors, but he preferred to make separate contracts for each. By so doing he dealt with the man himself, and further, saved the building owner the profits which would otherwise go into the pockets of the building contractor. Architects were now, he considered, saddled with responsibilities undreamed of thirty or forty years ago. Builders have altered entirely since that time, and clients have altered also. There is no longer the simple conditions that there ought to be. The whole conditions of modern practice, too, are so complicated. Architects have now to know such a lot; and the building owner's extreme desire to get the last sixpennyworth of value makes people extremely hard. Undoubtedly the architect is sometimes to blame, and they have not always done the best by their client. He did not think any architect wanted to shirk his responsibilities. But they do resent having to pay for things which they cannot control. The only thing apparently for them to do was to attend to their work, and to keep up their standard of attainment.

Mr. Saxon Snell, Mr. W. Henry White, and Mr. Edward Greenop then acknowledged the vote of thanks. Mr. Greenop replied to some of the points in the discussion arising out of his paper read in December last.

CURRENTE CALAMO.

We hardly wonder that Professor Reginald Blomfield "felt rather more fogged at the end of Monday evening's discussion at the Institute than he was at the beginning." We feel much the same after reading the debate, and by the apparent ignorance displayed by some of the speakers of the main principles which we endeavoured to set out in our article published on Jan. 5 last. Perhaps, next week we may try once more to make plain what we endeavoured to point out then, namely—taking stock of the recent judgments of the Court of Appeal—what the actual legal position of the architect is, and how only he can act up to it. If even then he finds himself involved in litigation, his risks are really not much more special than those of most of us. If he thinks to avoid them by any other means than mutual co-operation for advice and defence, we fear he will not succeed.

However else readers may agree or disagree with Mr. R. M. Kearns's conclusions in his paper at the Surveyors' Institution on Monday night, which we give elsewhere, no one will question his assertion that the cost of labour in connection with maintenance frequently becomes abnormal owing to a "penny wise, pound foolish" policy in building, especially in the case of cheap houses put up for speedy sale. One has only to perambulate the newer suburbs, with their long rows of empty houses vainly offered to tenants and purchasers at rents and prices which fail to tempt any but the unwary, who have not yet experienced the formidable yearly addition to the rent—or deduction therefrom in the case of the owner—which "repairs" stands for. What is to become of this derelict property? Unlike that in the still nearer suburbs of forty years ago, very little of it is capable of conversion into shops. Much of it will, literally, tumble down ere many years pass. In many a street the ominous settlements due to last summer's high temperature are visibly dangerous. Other things, doubtless, are partly to blame; but, in the majority of cases, cheap labour must be held mainly responsible, and yet no one can shut his eyes to the fact that the same short-sighted policy is still rampant, even in cases where much is talked about "ideal homes," and better construction.

We hear so much about "Ideal Homes" nowadays, though nobody seems to show us much that is novel in what they offer as such, and even in what is attempted it seems to be ignored that the rentals are far above the means of the majority of the clerks and better-class artisans who cannot afford more than half a house, and so spend most of their lives in a dwelling which, built in the ordinary way, usually combines the maximum of daily hardship and the minimum of comfort or decency. Why is it, we wonder, that the small-house builder does not often provide four family villas of the sort they build in the United States, and meet this want? We have asked Dr. Audsley to give us a set of plans and a description, which we shall probably publish next week, and we hope they will set some builders thinking profitably. Especially we should like to see two features adopted, which will be noted. Neither is vital to the scheme, but each is so marked an improvement on our own

methods that it is extraordinary we still go on in the old fashion.

In Paris henceforth no new work is to be given to an architect who has attained man's allotted age. Should such an architect have a building in hand when his seventieth birthday falls, he may be allowed to finish it, but that must be his last. The reason for this is said to be that serious errors have been made in various edifices owing to the declining faculties, physical and mental, of aged architects. "It would be interesting," thinks the *Manchester Guardian*, "to find out how such an embargo would work out in London. Mr. Norman Shaw," remarks our contemporary, "for instance, was over seventy when he designed the Piccadilly Hotel, which—whatever its defects as a building for shops—is admittedly one of the most virile and thoroughly considered edifices of our age. If proof that his physical powers were still unfailing be needed, there is the fact that he continued to play a good game at lawn tennis until a few years ago." As Mr. Norman Shaw will be eighty one on the 7th of next month, he is still six years the junior of that hale and vigorous lawyer, Lord Halsbury, who, doubtless, is quite able and ready to take the Woollack again when the Tories return to power. Let us hope, when the "architectural embargo" at seventy comes along in London, somebody will pension off the veterans, and give them a chance of living as long as the judges!

The proprietors of the Manchester Royal Exchange, at a special general meeting on Monday, passed a resolution authorising the directors to proceed with the promotion in Parliament of the company's Bill as altered so as to provide for the larger scheme of extension to St. Ann-street. This scheme is estimated to cost a million pounds. It will enable 3,200 yards to be added to the floor-space of the Exchange, making it by far the largest in the world and up to date in every respect. We trust there is no real ground for the fears evidently entertained that "such restrictions may be imposed upon the company as would preclude the shareholders from adopting a broad, comprehensive policy, or, alternatively, that the company may not be required to provide a building worthy of the most important commercial Exchange in the world." Such fears, anyhow, are voiced by a correspondent of the *Manchester Guardian* in its issue of Tuesday last.

He points out that it is agreed between the corporation and the company that the portion in Cross-street is, in any case, to be demolished, and with it will disappear the principal architectural feature of the existing building. The whole area from and including Park-street to St. Ann-street, which contains some of the best shops, is to be acquired by the company. It is a proved necessity that all the floor space for members must be upon the one level. The members' floor of the present building only permits of shops 12ft. from the pavement, so that any extension of the existing building upon the same floor level would necessitate the replacing of the present first-class shops in St. Ann's square and Cross-street by such shops as those which exist under the present Exchange. In any extension of the present building heavy columns—in addition to the existing pillars—would separate the present floor from the new portion, and the result, in

efficiency, would be no more, in principle, than the corresponding alteration of the corresponding quoted as to agree that it would be a mistake to add an identical building to the one existing, which is not designed to obtain good revenue results from the letting of offices, etc. Any addition to the existing building must, therefore, he contends, be only a patch, and cannot be in line in St. Ann's square with the existing building in Exchange street.

A sufficient additional revenue to warrant an entirely new and imposing building could, it is alleged, be obtained if in a new building the gallery were specially constructed to provide—by means of a series of showcases—a permanent exhibition of the products, manufactures, and imports of Greater Manchester. Although this gallery need not be directly accessible to the Exchange floor, but approached by separate entrances, it would further serve the useful purpose of enabling manufacturers attending Change to show their new products and patterns, changing their exhibits as often as they desire. The risk, the correspondent—Mr. Marshall Stevens, of Trafford Hall, Manchester—admits, may be one that the shareholders would prefer to insure against. If this should prove to be the case, he is prepared to provide an association of good tenants to lease such a gallery as he suggests at a rental of £10,000 per annum, £10,000 per annum is a sufficient sum to provide interest at 4 or 5 per cent. upon the cost of demolishing the existing Exchange building and re-erecting upon its foundations that portion of the entirely new building.

An exhibition of works by Alphonse Legros, which was opened in the Water-Colours Gallery of the Nottingham Castle Museum on Tuesday, should prove of more than local interest. Legros, who died last year, spent much of his English life in teaching—first in the class of etching at South Kensington, and afterwards as assistant and successor to Sir Edward Poynter at the Slade School. Though essentially a figure painter, he also did landscapes, portraits in bronze and sculpture, and it may be remembered that in 1897 he was commissioned by the Duke of Portland to design the fountains for Welbeck Abbey. The original studies for these are shown, and it is interesting to compare them with the plaster models of the finished work in the permanent collection at the Castle. Of the etchings, the drawings of heads reveal, perhaps, the artist's best work. Studies from life of Huxley, Fennimore, Hiram S. Maxim, and others show draughtsmanship of high quality. There is also a collection of portrait drawings of his own family, full of life and expression, and many figure pieces and landscapes. "The Salmon Fisher" (No. 11) is a good example of his etchings, while there is an interesting allegorical series, entitled "The Triumph of Death." Legros's painting is best represented by "Femmes en Prière" 136, a group of females at a shrine. There is an interesting portrait of Legros himself by Mr. C. Shannon, A.R.A., and the bronze medallions should not be overlooked. The works have been lent by the family of the artist, through the Fine Art Society, and will remain open for about a month. An exhibition of some of the prize drawings 1912 of the Royal Institute of British Architects was also opened at the Castle the same day, the selections being exhibited in the Long Gallery.

ARCHITECTS' BENEVOLENT SOCIETY.

There was only a moderate attendance of subscribers and donors of the Architects' Benevolent Society at an annual general meeting held at Conduit-street on April 11. Sir Ernest George, A.R.A., who presided, in moving the adoption of the annual report, announced that the late Mr. T. M. Rickman had left the Society a legacy of £200. The report was approved as follows:—

In submitting their sixty-second annual report, the council regret that they have again to record a diminution in the amount of the society's subscriptions. The difference is small as compared with last year; but it is significant, in view of the fact that a special letter of appeal was issued by the president in January to over five thousand architects practising in the United Kingdom. The result of the appeal, although scarcely realising anticipations, increased by new or additional subscriptions the total amount received by £41 18s. 6d., while the sum of £124 8s. 6d. was added to the society's capital from donations received in response to the appeal. The council feel that the number of contributors on the society's books (the total number of subscribers is 5121) is inadequately representative of so large a profession, and are assured that the result of advertising, while extending knowledge of the society, leads to an insufficient return for the expense incurred. It is felt, therefore, that the subscription list must mainly rely for its support upon the efforts of individual members and upon the corporate action of the Metropolitan and provincial architectural societies. In this connection the thanks of the society are due to Mr. Watson Forthgill, the local honorary secretary of the Nottingham Society of Architects, who secured numerous fresh contributions. During the year the sum of £1,031 was distributed in relief, £245 being paid to pensioners, while £786 was disbursed in grants among seventy-four applicants. A pension having become vacant, various applications were considered, and the annuity was finally granted to the widow of an architect. The total amount received in subscriptions was £76 5s. 6d., as compared with £76 14s. received in 1910, while the amount received in donations was £226 14s. as compared with £109 15s. received in 1910, including Professor Atchinson's bequest of £20. Donations were also received as follows: Sir Ernest George, £20 and £1; Mr. Edgar Wood, £21; Mr. Edward B. P'Anson, £15 15s.; Mr. Arthur Ashbridge, £10 10s.; Mr. Thomas Dinwiddie, £10 10s.; Mr. Archibald M. Dunn, £10; Mr. John Belcher, £5 5s.; Mr. John Brossman, £5 5s.; Mr. F. W. Foster, £5 5s.; Mr. Banister Fletcher, £5 5s.; Mr. W. Hilton Nash, £5 5s.; as well as various smaller sums. With the amount carried forward from last account, together with the donations received during the year, the council were enabled to increase the society's investments by the purchase of £500 0s. 6d. and 3 per Cent. Inscribed Stock at a cost of £121 18s. 6d. At the beginning of the previous year the society's investments were £1,410 0s. 6d. and the council, through Mr. J. C. H. Brodie, presented the report of Mr. F. C. H. Brodie, £500 0s. 6d. and 3 per Cent. Inscribed Stock, in memory of their father, who was himself a liberal benefactor of the society. It is with great regret that the council have to record the death of Mr. William Glover and Mr. T. M. Rickman, the two vice-presidents of the society. Mr. Rickman had been a subscriber since 1891; he served on the council from 1906 to 1910, when he was elected a full member. His interest in its work, the association of Mr. Glover was more recent; but since he came to live in the South of England he took an active part in the progress of the society, generously contributing himself and influencing the contributions of others, greatly to the advantage of both income and capital. The following, being the five senior members, retire by rotation from the council: Mr. Charles Blundell, Mr. John Brossman, Mr. C. R. Baker, King, Sir Charles Nicholson, and Mr. G. E. Bond. To fill the vacancies caused by these retire-

ments, the council have the pleasure to nominate Mr. Henry Lovegrove, Mr. E. Arden Minty, Mr. Rowland Plumbie, Mr. William Woodward, and the President of the Society of Architects. The council have the pleasure to nominate Mr. Henry L. Florence for election as vice-president. The thanks of the society are due to the Royal Institute of British Architects for office accommodation, and to the staff of the Institute for assistance always cordially rendered in any matter connected with the society.

After the adoption of the report, the council were elected as follows:—President, the President of the R.I.B.A.; Vice-president, Mr. Henry L. Florence; members of council, Sir A. Brummell Thomas, Mr. Walter Cave, Mr. F. W. Hunt, Mr. Reginald St. A. Romieux, Mr. Lewis Solomon, Mr. T. E. Colclough, Mr. George Hubbard, Mr. E. B. P'Anson, Mr. A. Saxon Snell, Mr. W. L. Spiers, Mr. Henry Lovegrove, Mr. F. Arden Minty, Mr. Rowland Plumbie, Mr. William Woodward, and the President of the Society of Architects.

Mr. W. Hilton Nash was elected hon. treasurer, and Mr. Percival Curvey hon. secretary. A vote of sympathy was passed to Mr. Curvey, who was absent on account of illness. Mr. Henry Lovegrove and Mr. C. H. Brodie were thanked for their services as auditors. Votes of thanks to the chairman for presiding, and to Mr. Dicks for his secretarial work in connection with the society, brought the proceedings to a close.

THE REMODELLING AND EQUIPMENT OF MADRAS HARBOUR.

By Sir FRANCIS J. E. SPRING, K.C.I.E., M. Inst. C.E.

The author, who holds the position of Chairman and Chief Engineer to the Madras Port Trust, shows how, on a sandy coast totally devoid of all natural advantages, an artificial harbour, with an area of 200 acres, had been constructed, originally at a cost of nearly one million sterling, and yet, when made, and up to seven years ago, it was found to be of comparatively little use for the easy, cheap, and expeditious transit of cargo between ships' holds and carriers' carts or railway waggon. By a further expenditure of £250,000 on the remodelling of the harbour and the formation of a basin for small craft, conditions have been secured which enable cargo to be handled between ship and shore in all weathers. This remodelling consisted in closing the east entrance, which allowed the swell to roll in nearly all the year round, and forming a new north-east entrance, under shelter of a projecting breakwater. Finally, at an additional cost of £300,000, equipment has been provided in the shape of works on shore, such as piers and wharves for lighters, a quay for ships, an ample supply of cranes, a large area of shelving, together with railways, roads, and everything else required for the speedy, safe, and convenient passage of goods through the Port Trust's premises. The direct result of the construction of the basin has been to enable the port to bring into the harbour a fleet of privately owned lighters, of 10 to 60 tons capacity. The effect of this extra two-thirds of a million expenditure over and above the original million is that vessels visiting the port—other than what may be called the passenger ferry boats trading with Burma and the Malay States—are passing in and out of the harbour in about half the time possible five years ago, when its capacity has, virtually, been considerably enlarged. After a brief summary of the history leading up to recent developments, the author deals with the matters of engineering interest met with in connection first with the remodelling of the harbour and next with its equipment. He also touches on the important question of sand movement. The question of wind action is also touched on, save action as a factor affecting the outside working of vessels moored in the harbour, and it is claimed to

have been proved that, as the result of the remodelling, it will be safe to build quays at which large vessels may lie and work their cargo. As such quays seem to be also needed at the harbour, a scheme has been prepared for a length of 3,000 ft. of masonry ship-quay, of which about one-fourth is now well in hand. The rates at which important parts of the work have been executed are given, together with an explanation of how funds were provided. The average incidence of the dues levied by the Port Trust is stated, whether on goods per ton or on vessels per ton registered, dues which it has not, so far, been found necessary to enhance, as the result of the heavy expenditure that has lately been incurred. Finally, the manner and conditions of handling cargo are described, and the extent of the Trust's intervention between steamers and their customers, together with the reasons for such intervention, is dealt with.

THE ALTERATION OF THE FORM OF MADRAS HARBOUR.

By H. R. G. MITCHELL, M. Inst. C.E.

The second paper deals with the method of carrying out the actual work of alterations to the harbour. The first consideration was the weather, and special precautions had to be taken to secure the work during the cyclonic season. Any taking such precautions it was possible to proceed continuously with the setting of the sloping blockwork. The materials used in, and the method of making the concrete blocks are described. In the erection of the north sheltering arm the blocks were dealt with by means of a titan crane capable of lifting the 33 ton blocks at a radius of 62 ft. The blockwork is in the form of sloping slices or in a regular bed, with poll-mell wave breaker blocks on the seaward side. The opening of the new entrance presented great difficulties, as not only had the existing breakwater to be removed, but also the remains of a former breakwater. By means of the titan crane and a floating barge fitted with a powerful derrick, however, both the poll-mell blocks and the sloping blocks were effectively removed. The rubble base was dredged by means of a bucket dredger, precautions being taken to strengthen the valves, shoots, and hoppers against the pounding of the large stones brought up. On the opening of the new entrance the old one had to be closed. This was satisfactorily completed in September, 1910. The author also describes the construction of the slipway which was made capable of taking vessels up to 500 tons dead weight, and the systems and appliances used in the method of payment of labour are dealt with, and details of the cost of the work are given in an appendix.

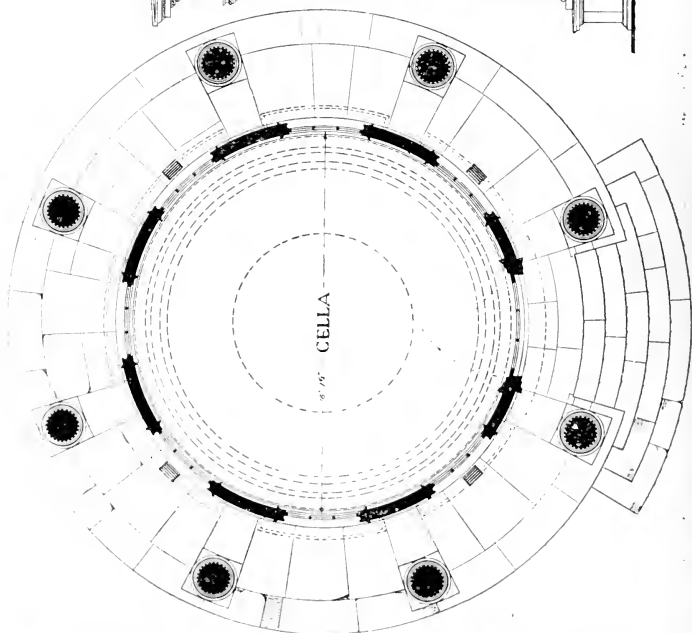
The Rev. Jacob Primmer, Dunfermline, states that he has received information from an influential and reliable source that, owing to the action of the Kincaidine Gail Brewery and the Scotch and Irish Church of the Holy Land in support of the retention of the King's memorial marble altar in Crathie Parish Church, the parish church for Balmoral, that a will bequeathing £20,000 to the Church of Scotland has been destroyed, and the money diverted to a different object.

Sympathy is felt at Kedgeley for the young widow and the relatives of Mr. Harry Shackleton, who has passed away at the age of twenty-eight years at Liverpool, after an operation for appendicitis. A student at the Kedgeley Trade and Grammar School, and the Technical Institute, after holding appointments as architect at Manchester and Bolton, he became an assistant architect under the Board of Works, with special oversight of the Labour Exchange in Lancashire.

The Chapel of Ease, St. Catherine's Parish, Donevogue, S.E.R., Dublin, which has been in an unfinished state for the last fifteen years, is now to be completed by the erection of northern transept, chancel, vestry, tower, and porch. The architect, Mr. R. J. Stirling, of 45, Pembroke-road, Dublin, has prepared the plans. They are to be carried out by Messrs. J. and P. Good, contractors, 55, Great Brunswick street. The amount of the contract is £2,295. The building will be of red brick, with granite dressings.

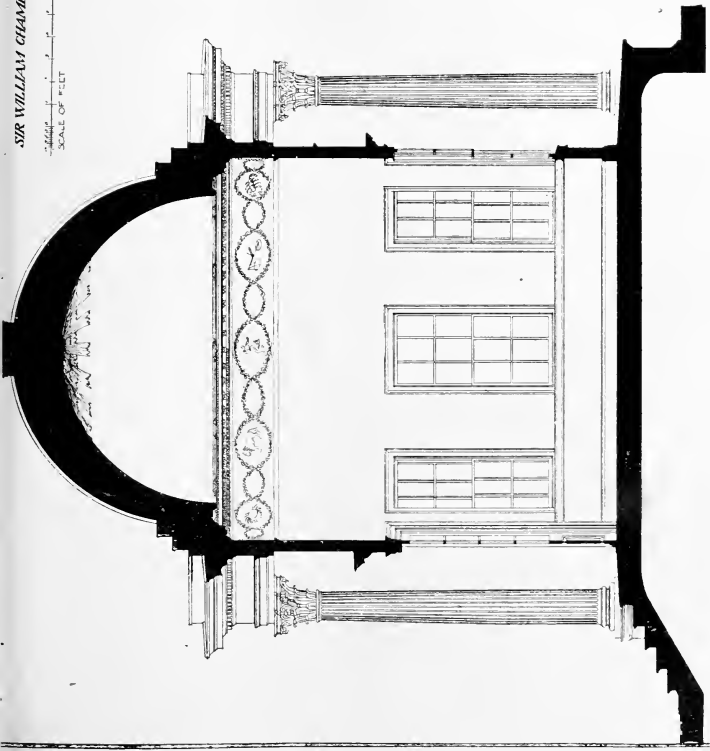
Abstracts of two papers intended to be read at the ordinary meeting of the Institution of Civil Engineers on Tuesday, April 16, 1912.

On a site on the Shelbourne road, Dublin, covering an area of over 14,000 superf. ft., new buildings are being erected from the plans and specification of Mr. Field Hayes, architect, M.R.I.A., 24, Nassau street, for the Swastika Laundry Co. Ltd. Messrs. Bolton and Sons, Rathmines, are the contractors.

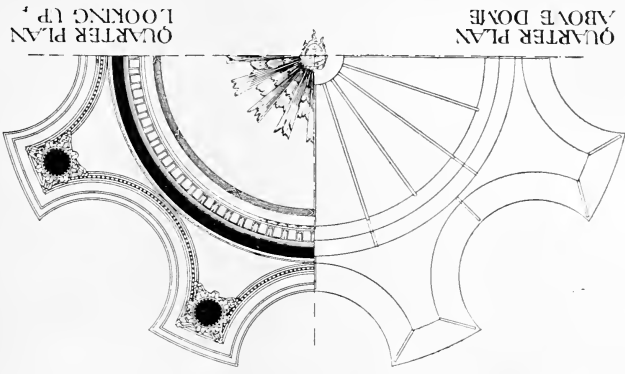


SIR WILLIAM CHAMBERS' ARCHIT.

SCALE OF FEET
0 1 2 3 4 5 6 7 8 9 10



SECTION



QUARTER PLAN
ABOVE DOME

QUARTER PLAN
LOOKING UP

MEASURED AND DRAWN BY MAURICE S. R. ADAMS, A.R.C.H.T.

THE LAND UNION.

The third annual meeting of the Land Union was held on Tuesday at the Whitehall Rooms, Mr. E. G. Protyman, M.P., presiding. Mr. S. H. Moffing-Goldman, in presenting the accounts, said that this year one of the most substantial subscribers to their funds would be the Chancellor of the Exchequer, who had to pay their costs in the test action regarding Form VIII. Mr. C. E. Newton Robinson, in proposing the adoption of the annual report, said that after three years they had brought the Commissioners of the Inland Revenue face to face with the referees under the Finance Act, and they had been able to persuade these gentlemen, who were independent valuers and not lawyers, and did not understand some of the extraordinary complexities of the Act, to come to decisions marked by a sense of justice.

Mr. E. G. Protyman, M.P., said that the Land Union had a very difficult task for it had to combine advisory and political work. Almost the whole of the time of the Legal Committee was taken up in dealing with the cases of very small holders of land. On the political side they were quite satisfied with the progress made. Thanks to the Land Union, the land taxes were no longer popular. He was not sure that the Government did not find it pay to cover up their tricks by starting fresh manures to occupy public attention. It was impossible to get correct answers in the House of Commons as to how far the valuation had really gone. The claim was made that one-fifth of the valuations had been made, but these were mostly duplications of such things as rows of identical houses, and the policy of the valuations department was obviously to serve valuations on people not likely to object. Great difficulties were arising over "substituted site value." Then they had had the very amusing cases of "minus valuations." Captain Craig, M.P., owned a villa near Belfast. The agricultural value was brought out at minus £1,000 and the site value as minus £5,000. Any mathematician knew that two minuses made a plus, and therefore a claim was made for undeveloped land duty on £6,000. The claim had not been pressed, but it showed the absurdity to which this system had been taken. The cost of the valuation had been enormous, and the yield very small. The defence was that the valuation was being made not for the purposes of collecting the taxes, but to make a Domesday Book for future Chancellors. If that object was going to be attained, the valuation ought to be uniform. But agricultural land was being valued on a wholly different system from building land. To ascertain whether building land was devised of all that was the result of human endeavour; but in the case of agricultural land the whole of the improvements still remained in the site value. They were told that it did not matter, because they did not pay taxes on agricultural land. The Government were now claiming to share profits. That was not taxation; it was exortion of money from private owners without the authority of Parliament. They were responsible for this claim ought to be in the dock. What was being taxed was not the increase in the value of the land as Parliament understood, but occasional profits of land, and there was no allowance for losses. The man who bought land, cut it up in blocks, and made a profit on some but losses on others, paid on the profits, but had no allowance for the losses. He had hoped that the old Domesday Book could be removed from the Statute Book before long.

SAPPY OAK.

Sappy oak, says the *Master Builder*, has suffered immensely from abuse, and has been neglected because it has not been properly understood. The sap part of oak has been considered as inferior, and the outside or sap part has never been regarded with a good eye. All the same, if properly cared for, it is a fine material, and it is used, in fact, in a great many good results. For certain uses, such as in cabinetwork it is really

a better body to work on than heart oak. It is the same way in flooring. If one but takes care of the sap and segregates it from the heart stock so as to get it all together for harmony in texture and colour, there is a chance to do just as effective work with sap as with heart. There is no comparison of sap with heart for timbers and exposed work outside where durability is an object under the method of using the timber plan; but with the modern systems of treating wood, the sap part of oak is being made much more useful and durable even for outside work. If sappy oak flooring is selected and laid with care, and properly stained before finishing, it will present a beautiful appearance. The same applies, but to a higher degree, to furniture and cabinetwork. The only thing necessary is to take care of the sap stock from the time it is cut until it is ready to be used. To have the sap dominating in the particular work in which it enters, and the work carried out right, one can get new appreciation of the possibilities and beauties of sappy oak. The sappy part of oak is usually likely to show in the grain and in the texture, and needs extra care. The manufacture of artificial limbs and crutches has become a considerable source of consumption for several kinds of hardwoods. Red willow of the best grade obtainable is used for this purpose in America. It is bought in round blocks, just as they are cut from the logs, in lengths varying from 16in. to 22in., and in diameter from 5in. to 10in. Air dried stock is essential for the kind of work that can be used, as it has been proven practically impossible to prevent checking along the grain of kiln-dried blocks. Willow blocks are used in what are known as extensions—namely, specially shaped blocks for equalising the length of deformed limbs. There is also a considerable quantity of various hardwoods used in the manufacture of crutches. Hard maple, rosewood, ebony, hickory, and some lacquer-wood are the principal species used. The best grades of stock are used for this purpose, and are taken in lengths varying from 32in. to 60in. The boards are ripped into inch squares, after which they are shaped, rounded, and varnished.

THE EDINBURGH COLLEGE OF ART.
COMPLETION OF THE BUILDING.

The second hall of the Edinburgh College of Art, Lauriston, has now been completely finished. The Lauriston, has now been completely finished. The rooms were available for the work of the summer term, which began yesterday. The Edinburgh College of Art was established in 1908 by the town council of Edinburgh to serve as a central institution for art education in Edinburgh and the South-East of Scotland. It took over and incorporated the work of the Royal Institution School of Art and the art department of the Heriot-Watt College. The foundation stone was laid by the present King and Queen, then Prince and Princess of Wales, July 11, 1907, and since its opening on January 7, 1909, the college has been an unqualified success. The number of students has augmented each year, and now attains the figure of about 880 in all departments—a larger half attending the classes in the evening.

Designed by Mr. J. Dick Peddie, M.S.A., the entire cost of the building, including £10,000 for equipment, will not be far short of £80,000. The imposing facade of the college is hidden to view as it is at present; but the obstructing houses shutting out the view from Lauriston may be removed when funds are available. Erected on the Cattle Market site, the college has a frontage to the south of 350ft., and a depth northwards of 125ft. It is built to the south in two imposing stages on the north side the slope of the ground admitted of a basement floor being formed, of which ample use has been made. The facade is of Classic design, with a touch of French treatment in the pavilion roofs of the four corner towers. A feature is made of the main entrance, with its group of columns carrying a pediment which in due course will be filled with sculpture. The walls are of red sandstone; the roof covered with soft green slates.

Internally, from the entrance hall the broad, straight corridors run east and west, and off them the classrooms open. The new hall of the college is that on the east side. The sculpture hall is 100ft. in length, 60ft. in breadth, and 45ft. in height. It rises through both the floors, and is lighted from the roof. Separating the hall proper from the main corridors along its four sides is, on the ground floor, a massive arcade. There are six arches on the north and south sides, and three on the east and west. On the floor above, instead of the dividing arches, there are sets of grouped iron columns, the openings between them being protected by iron balustrades. In the sculpture hall will be set up the best of the antique statuary which formed the collection at the old Mound Gallery, as also a fine collection of new casts of ancient and modern sculpture, for the purchase of which the sum of £2,000 has been earmarked. Adjoining the sculpture hall on the north side is the antique room in which the examples of sculpture required for study can easily be removed.

Stepping from the entrance hall into the corridor on the south side of the new part of the college, on the lower floor, are a new office for the secretary, a new board room, and two large halls devoted to the teaching of architecture. At the extreme east end is a small conservatory, where flowers and plants for painting purposes will be kept; a room for the head of the architectural section, and a third room for architectural students. Along the north corridor are two painting rooms and the room for the study of the antique. The largest of the architectural halls is 70ft. by 30ft.; the antique room is 55ft. by 30ft. The ceilings are all 18ft. in height, which enables the rooms to be lighted by a series of lofty and spacious windows in the walls.

On the first floor, along the corridor on the south side leading east from the top of the grand staircase, is a museum (40ft. by 30ft.) and three classrooms for design. At the east end there is another small conservatory, a fourth room for design, and a room for the head of the section. Along the north side of the northern corridor are a room for the head of the section of painting, and a wardrobe room between the painting and wardrobe rooms. The first floor ceilings are all 24ft. in height, and most of the rooms have roof as well as side lights.

There is a third small story at the east end of the new part of the building, in which will be housed the Royal Scottish Academy's school of painting, which is now under the joint management of a committee of eight elected in equal parts by the Royal Scottish Academy and the board of management of the College of Art. It consisted of two large classrooms about 40ft. square, with retiring rooms for the models. The "throne" for the model in these, as in all the other life classrooms in the building, will be warmed by electric heaters. The whole college is heated on a hot-water system with radiators, and artificially lighted by electric light.

In the basement in the new part of the college is a men's common room, 40ft. by 25ft., with cloakroom on the opposite side of the corridor, a matron's room and store; a dining hall for masters and students of both sexes, 60ft. by 35ft., with scullery, kitchen, and scullery attached. The walls of the dining room are panelled, and in these decorative pictures will be painted by the students. A long tunnel between the retaining wall and the inner corridor wall in the basement makes an excellent store. £600 has been set apart to build an animal studio at the west end of the building, where living animals may be kept that are being painted.

The town council has voted £1,000 for the laying out of the ground, now in a very rough state, in front of the college.

The Local Government Board has withheld its consent to a scheme for the erection of fifty artisans' dwellings at Child's Hill, Hendon, on the ground that cottages of a more commodious type could be erected and let from 7s. to 8s. 6d. a week. The Hendon Council has amended the plans accordingly.



Newspaper Illustration, L'Echo.

THE QUEEN VICTORIA MEMORIAL AT NICE.—M. MAUBERT, Sculptor.

THE QUEEN VICTORIA MEMORIAL AT NICE.

The memorial to Queen Victoria was unveiled last Friday at Cimiez in brilliant weather. Speeches were made by the Mayor of Nice, the British Ambassador (Sir Francis Bertie), and the French Prime Minister (M. Poincaré). Earlier in the day there was a review of British and French sailors and a march past, during which the French battle fleet steamed close in shore, and four aeroplanes circled over the spectators.

M. Poincaré's speech best describes the memorial: "This beautiful monument, which

is the work of M. Maubert, expresses, in the form of a happy symbolism, the feeling which has inspired this memorial celebration; and here is the old Queen as you knew her, gentlemen, from 1896 to 1899. Venerable and motherly, dressed with her wonted simplicity, seated with an unaffected dignity, she slightly bends her face, with a grave and attentive look, towards the girls who, in a harmonious group, symbolise at her feet the towns where she sojourned on the Riviera Nice, with a fine, free gesture, offers a bunch of flowers to the Queen; Cannes, too, brings a posy, and gently leans with her hand upon graceful Mémone, who in turn presents her

offering of lemons and of a variety of flowers, while Grasse, half kneeling, detaches some flowers from the bouquet that she carries and wreathes with them the Royal Arms. Thus in white marble are shown both the smiling hospitality which it was the lot of these four towns successively to extend to the old age of the Queen, the heartfelt gratitude which they have ever entertained towards their illustrious visitor, and, at the same time, the tranquil majesty of a woman who wore for sixty-three years the crown, as well as the triumphant charm of the cities which form the glory and the wealth of this favoured region."

thin walls of the upper stage of the tower were strengthened internally by a framework of ferro-concrete piers and cross beams on the Hennebique system, these piers being dovetailed into the walls at intervals. The bells are rebung at one level on an iron frame carried off the thicker walls of the lower stage. While the work was in progress, an additional two bells were presented to the church, and of necessity these had to be hung at a higher level, but carried by the main frame, thus making a peal of twelve bells. The clocks were pointed out and a few decorative stones cut and replaced, the whole of the work being carried out with the least possible cutting to the existing fabric. Messrs. Frankland Phillips and Co. were the steeplejacks, and the ferro-concrete work was carried out by Messrs. Highbrough and Co., of Gloucester. The lecture was illustrated with numerous lantern-slides, detail drawings, and models. A hearty vote of thanks was accorded Mr. Osberton for his most instructive and interesting paper.

IPSWICH MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Ipswich Building Trades Association was held on April 10, when the president (Mr. B. Bird) occupied the chair. Mr. C. E. Whitmarsh proposed the toast of "Success to the Ipswich Building Trades Association," and said there was one way in which they could co-operate, and that was in the raising of a living fund, because at present it was all work and no profit. The trade engaged the second largest body of men in the country, but in no trade was the profit so little in comparison with the wages paid, and it was on lines similar to these that associations such as theirs could do a great deal of good. To use the language of the day, it was time the builders struck for a minimum profit. Mr. Buckingham Bird, in response, said that in the course of another week he would have been closely connected with the trade for fifty years, and during the whole time the trade had never been properly recompensed. It required a great deal of hard work, time, experience, and tact, and those qualifications should be properly paid. In the building trade proper few had retired in affluence, and quite half had finished up in Bankruptcy Court, or dependent on charity.

As a memorial of the late rector, it has been decided to restore, beautify, and add to the font of the church of St. Nicholas Cole Abbey, City, so as to convert it into a baptistry. The cost is estimated at about £100.

A Bill presented in the New Jersey State Assembly provides for the appointment of a State architect at a salary of 7,500 a year. The Bill has received the approval, it is stated in the daily Press, of the New Jersey State Chapter of the Institute.

The Architectural Association of Ireland notify competitors for various prizes that all drawings submitted in competition must be delivered, addressed to the local secretaries, at the rooms, 13, South Frederick lane, not later than 6 p.m. on the last prox.

The new wing to Rochelle S-minary has just been completed from designs prepared by Messrs. W. H. Hill and Son, of Cork. Under whose supervision the work has been carried out, and consists of laboratory, kindergarten, kitchen, classrooms, a suite of music-rooms, and a cloakroom, the building contractors being Messrs. J. Delaney and Co., Cork.

Swiss archaeologists are puzzled about the discovery at Neuchâtel, by workmen on the future site of a hospital, of a vault built in bronze, in which they were created 600 years B.C. In the vault, the skeleton of a young woman was found, whose bones seem to be unmineralized, and on her wrists were four bracelets in bronze and two in lignite, while by her side was a little bronze bell.

Accompanying the gift of a gavel to the Marlborough Lodge, Liverpool, from Bro. Ernest C. Bromley, Grand Master, State of Mass., U.S.A., was a framed address which announced that the log from which the gavel was made was brought down from Mount Lebanon by members of the Mount Lebanon Lodge. The log came from the same forest where the timber was secured for the building of the Ark and the two temples at Jerusalem.

Building Intelligence.

PETERBOROUGH.—A new new church hall, opened on Friday, has been built by Mr. J. Lucas from the designs of Messrs. Townsend and Fordham, architects, of Cross-street, Peterborough. It is 63ft. by 26ft., and will accommodate 250 people. Two classrooms, divided by a movable screen, are at the back, together with a kitchen. The buildings are designed in a simple form of English Renaissance, the interior of the meeting hall having a dado of glazed bricks, whilst the roof timbers will be exposed to view, and will be stained a dark oak colour with black between. It is connected with the school by a covered verandah.

SARFOLK.—On Tuesday week Sall church, Salford, was reopened after restoration. The church has been almost entirely re-roofed, the tower, walls, and parapets have been thoroughly repaired, the interior cleaned and renovated, new seating accommodation installed, new organ erected, and two new bells added to complete a peal of eight. The total cost slightly exceeds £8,000. The architect employed for the work was Mr. J. J. Reeve, of Queen Anne's Gate, Westminster, and the repair of the remainder, including the south aisle, south transept, tower, and side chapels, has been executed under the direction of Mr. Wm. Weir, the architect of the Society for the Protection of Ancient Buildings. The new church furniture, including the organ case, have been designed and made by Mr. E. W. Gimson, of Cirencester.

WASHINGTON.—The interior of Dame Margaret's Home, Washington, has been entirely remodelled. Adjacent to the principal entrance, two large rooms have been converted into one, and this provides a dining-hall capable of seating the whole of the children. Other large rooms on the ground floor have been formed into suitable play-rooms for both boys and girls, and provision has been made for the necessary staff rooms and offices. The kitchen arrangements have been brought thoroughly up to date with efficient lighting and ventilation, and an installation of steam-cooking appliances introduced. Spacious lavatories and bathrooms have also been formed in convenient positions on the ground floor, and the sanitary blocks have been entirely rebuilt. The laundry block has been put into thorough working order, and fitted with a drying closet and other suitable fittings. The rooms on the upper floors have been formed into large dormitories wherever possible. The institution is now capable of accommodating upwards of 150 children, and the extent of the grounds is about eleven acres. The general contractor is Mr. G. H. Mauchlen, and the whole of the work has been executed under the personal supervision of Mr. Charles S. Errington, A.R.I.B.A., of Grainger-street West, Newcastle.

In connection with the extension scheme of the Monmouth Grammar School, the Haberdashers' Company have accepted the tender of Messrs. Wilcock and Co., of Southampton, for the work, the price being £2,187.

Early last Sunday morning the death took place of Mr. W. J. Press, the well-known civil engineer and urban councillor of Burnham. The deceased was for some years the surveyor to the urban council, and under his direction the town made excellent progress.

The earliest known portrait of Bonaparte has been unearthed from a lumber-room in Versailles, he being depicted as a child, and to have been painted by Pontormi, one of his youthful companions. Together with that of Minnie, Mère, the Empress Josephine, Queen Hortense, and Eugène de Beauharnais, it has been sent to the Louvre by the Comte de La Malmoussin.

Sir Bosdin Thomas Leach, chairman of the Manchester waterworks committee, and "father" of the Manchester City Council, died on Tuesday at his residence at Timperley, Cheshire. Born in November, 1826, he was one of the original promoters of the Manchester Ship Canal, and was knighted when Queen Victoria visited Manchester to open it in 1894.

Correspondence.

ARCHITECTURAL ETHICS AND CRITICISM.

To the Editor of the BUILDING NEWS.

SIR.—Mr. C. MacArthur Butler, in his recent lecture, says many suggestive things, as reported in last Friday's issue; but in his projected code of ethics he formulates at least one rule which in practice could not be maintained. I allude to No. 13, which provides that it shall be considered unpardonable for an architect to criticise in public print the professional work or conduct of another, except over his name.

This looks plausible enough at first sight; but consider what it really means. Useful criticism of a technically reliable kind in regard to architectural practice, competitions, and exhibitions as at present contributed by practising architects to the professional journals, and also other able writers who are specially commissioned to express their views because of their acquaintance with the subjects dealt with. In future, if Mr. Butler carries this stipulation (which I am confident he will never do), the result would not be conducive to architectural progress. The rule would be more honoured in the breach than in its observance, or men who, on technical training would be engaged to do this criticism, or perhaps some inferior, down-on-his-luck sort of architect might get the job because it had been ruled unpardonable for better men to undertake such commissions.—I am, etc., F.R.I.B.A.

PARLIAMENTARY NOTES.

STATUES IN ROYAL PARKS.—Captain Murray (Kendalshire, Min.) asked the hon. member for St. George's-in-the-East, on Tuesday, whether, in the event of the King Edward Memorial being erected on the site in the Green Park proposed by the King Edward Memorial Committee, he would have an understanding that in future no more memorials or statues would be placed within the confines of the Royal Parks.—Mr. Benn (St. George's-in-the-East, Min.): The First Commissioner is already ready to promise that he will oppose any scheme which is brought before him for the erection of any statue in any Royal park. He regrets, however, that he cannot pledge his successors.—Mr. Whitehouse (Lanark, Mid. Min.): Has not the First Commissioner already announced his intention to place a statue of Peter Pan in Kensington Gardens, and will that statue now be placed there?—Mr. Benn: Yes, sir; this understanding is not retrospective. The statue of Peter Pan will be placed in position on April 29.—Mr. C. G. Gomm (Southwark, Rotherhithe, Min.): Is there still any doubt as to whether the statue of King Edward will be erected?—Mr. Benn: I understand that they are proceeding to erect the memorial.

COTTAGE HOMES FOR AGED PERSONS.—Bill.—In the House of Commons last Friday, Colonel Harrison-Broadley moved the second reading of the Cottage Homes for Aged Persons Bill, which sought to empower local authorities to build dwellings on land given free, and to let them to old persons at sufficient rents to cover interest, on the cost. An amendment was moved by Mr. Booth on the ground that the question ought not to be dealt with by piecemeal legislation. On behalf of the Government, Mr. Lewis put forward various objections to the Bill, the second reading was defeated by a majority of 62.

The Clonkilly District Council have been again considering the question of a water supply for Clonkilly, and have decided to do so for Clonkilly, and have decided to supply "a plan, specification, and drawing for the sum of £10 and 25 per cent. on the outlay, provided it does not exceed £800." As we stated on p. 576, they formerly offered a prize of £5.

There were ninety applications for the post of surveyor to the Clonkilly Rural District Council, followed vacant by the resignation of Mr. F. C. Meyrick, and the following were selected to attend at the next meeting of the council for the final choice.—Mr. R. Watford, surveyor to the Rural District Council; Mr. J. Southwell, inspector of nuisances; Mr. C. H. Wright, surveyor to Barrow-on-Siar Rural District Council; and Mr. S. C. Rigg, sanitary surveyor to the Downham Rural District Council.

The Deutsche Rekord Cement Werke Messrs. J. Krumpelmann and Co., and Mr. J. Krumpelmann, Lindinghausen, Westfalen, Germany, have patented a substance for adding to cement to render it waterproof which consists of ground bituminous shale.

treated with hydrochloric acid, and, after the carbonic acid has escaped, heated for about three hours with steam at about four atmospheres. The mass, while still hot, is mixed with gas tar mineral oil, or the like, and dried at 100 deg. C. The substance has the property of forming an emulsion with wet cement, and of emulsifying a further quantity of fatty or oily substances. In one example 750 gms. of hydrochloric acid are added to 2500 gms. of ground shale, and to the plastic mass 15 per cent. of tar and 15 per cent. of oil are added. The dried product is added to Portland cement in the proportion of one part of product to eight parts of cement.

The Lambmen's Underwriting Alliance of Kansas City, U.S.A., reiterates the recommendation that a thorough cleaning of all wood-work of sawmills and factories, and then the application of a generous coat of white wash, spells very much for decreased fire risk. The Alliance suggests the following approved recipe for the making of white wash: Make one-half bushel of lime with boiling water, let it cool, and add 1 lb. of slacked lime; strain it, and add a peck of salt dissolved in warm water, 3lb. ground rice put in boiling water and boiled to a thin paste, 2lb. powdered Spanish whiting, and 1lb. of clear glue dissolved in warm water. Mix these well together, and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible with a painter's whitewash brush.

St. Mary's Church, Waldron, Sussex, possesses a ring of eight bells with a tenor 74 lb., the 3rd and treble were cast by Wm. Meads in 1779 and 1780 respectively. The 2nd and 4th were cast by Thomas Janaway in 1773, the 4th and 5th were cast by Richard Phelps in 1732. The tenor and 7th were originally cast by Richard Phelps, but were recast by John Warner and Sons in 1887, to commemorate the Jubilee of Queen Victoria. The bells thus represent the work of four different founders, each of whom cast two bells. These bells are now to be recast into a new ring of eight bells, with a tenor to weigh 12 cwt., and hung in a modern steel frame. The work of restoration has been entrusted to Messrs. John Warner and Sons, of the Spitalfields Foundry, London, and the new bells will be dedicated by the Bishop of Lewes on June 27. The same firm has also in hand the restoration of the bells of St. Michael's Church, North Finchley, also at St. Michael's Church, Bath. The latter bells were originally cast by Abel Rudhall in the year 1757.

France is to have a Rodin Museum, the Hotel Biron, where the sculptor gives his sittings. Rodin offers all his works that are in his own possession, the result of 40 years' labour, his own statues, drawings, sketches, and his collection of antique statuary to the State, to be preserved in that part of the mansion which he now occupies, and which after his death is, according to his plan, to become a public museum, while the fine grounds which surround it are to be a public garden. He offers to arrange all at his own cost on condition that he may continue to inhabit his "pavillon" while he lives. He cannot bear to think that the grand old hotel should become either a lycée or a Government office. "A Government office at the Hotel Biron," he declares, "would be a disgrace to this admirable building. The architects who let it out as a hotel, on the pretext of preserving it would demolish, reconstruct, fatally change its aspect, and destroy its characteristic features."

In the course of excavations carried out at Gillingham, Dorset, in connection with the new swimming baths for the Gillingham School, interesting archaeological discoveries have been made. About 10 ft. below the surface, under an alluvium of blue clay, traces of an ancient lake, or river bed of sand and pebbles were found. Driven into the bed were several stout pieces of oak timber, and the pebbles were fixed so firmly that it was impossible to extricate them without considerable labour. Further search revealed

the large bones of a deer skull and a red deer's antler, the jawbone and teeth of a large herbivorous animal, and a large number of worked flints. The site is supposed to be that of a very ancient lake village, similar to, but of greater antiquity than, the famous lacustrine village of Glastonbury, though at present no definite conclusions have been arrived at.

A course of instruction in Structural Mechanics will be given at the London County Council Central School of Arts and Crafts, Southampton row, W.C., on Thursday, April 19, from 7 to 9.30 o'clock p.m., beginning on April 25, 1912, by Mr. Percy J. Waldram, F.S.I. This course has been specially designed in preparation for the entrance examination, intermediate and final, of the Royal Institute of British Architects. Candidates for these examinations should note that the Board of Architectural Education of the Royal Institute have called attention to the necessity for more thorough knowledge of the subject of structural mechanics on the part of those seeking admission to the Institute. Applications for admission to the class should be made as soon as possible to the Secretary at the London County Council Central School of Arts and Crafts, as the course will only be given if sufficient entries are received.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (APRIL 19).—Institution of Civil Engineers. The 24th James Forrest Lecture, by Arthur Mallik, F.R.S. 9 p.m.

MONDAY (APRIL 22).—Royal Institute of British Architects. Paper on "The R.I.B.A. Library, and Some of its Contents," by C. Harrison Townsend, F.R.B.A. 8 p.m.

WEDNESDAY (APRIL 25).—Royal Society of Arts. Technical Education in Ireland, by Mr. George Fletcher. 8 p.m.

FRIDAY (APRIL 26).—Institution of Civil Engineers. Students Meeting and Lecture on "The Principles and Practice of Accountancy in the Construction of Engineering Design and Work," by F. Francis Thomson, M.I.C.E. 8 p.m.

SATURDAY (APRIL 27).—Junior Institution of Engineers. Visit to the Engineering Workshop and Laboratory and Electrical Laboratory at the Polytechnic, 307-311, Regent-street, London, W. 3 p.m.

Trade News.

WAGES MOVEMENTS.

LONDON. A mass meeting of London woodworkers connected with the building trade was held on Clapham Common last Sunday afternoon in support of the movement for securing higher wages and shorter hours of labour. A resolution welcoming the joint trade movement which had brought the carpenters, joiners, and cabinetmakers together was proposed by Mr. C. Young, of the Associated Society of Carpenters and Joiners, seconded by Mr. W. Raynor, London District Secretary of the General Union of Carpenters and Joiners, and supported by Mr. Bramley, organising secretary of the National Amalgamated Furnishing Trades Association. Mr. Richmond, London District Secretary of the Amalgamated Society of Carpenters and Joiners, and other speakers. It was contended on behalf of the men that they had not had an increase of wages for twelve years, although during that period the purchasing power of the sovereign had fallen from twenty shillings to fifteen. Every commodity, said Mr. Raynor, had increased in price, including even winkles. Mr. Bramley said that the stop-work building would have no cease. They also had the support of the smiths and fitters. If they asked for shorter hours, 47 hours a week instead of 50 during 29 weeks of the year, it was that they aimed at diminishing the number of the unemployed. They were particularly large in the building trade. It was for the same reason that they wanted double pay for overtime, as employers would, if that point were carried, do away with overtime altogether. The resolution was carried.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondence.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, &c., should be addressed to the EDITOR of the BUILDING NEWS, at 11, Abchurch-lane, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings are returned to correspondents at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. (Of more consequence subjects—small churches, chapels, houses, &c., we have usually far more sent than we can insert, but are glad to do so when space permits on mutually advantageous terms, which may be ascertained on application.)

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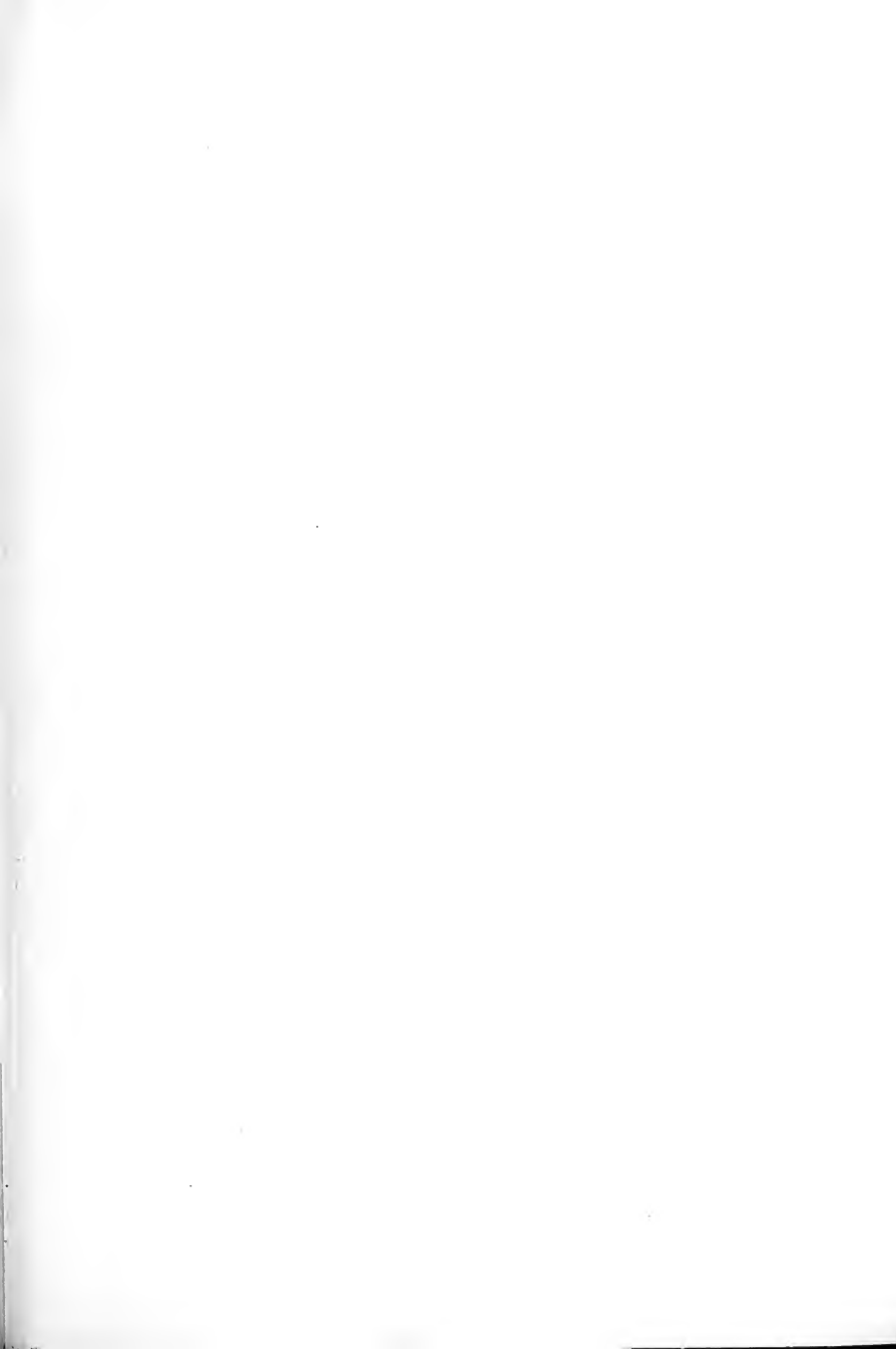
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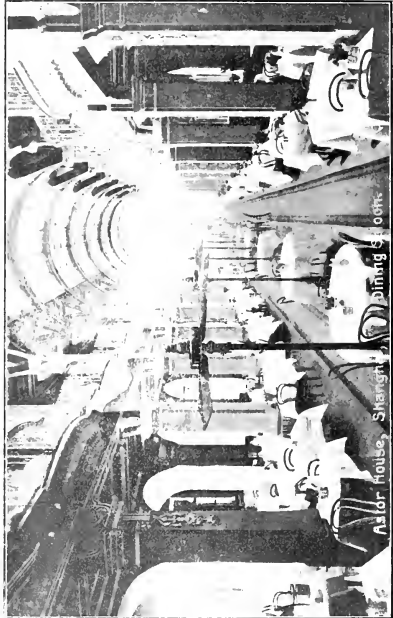
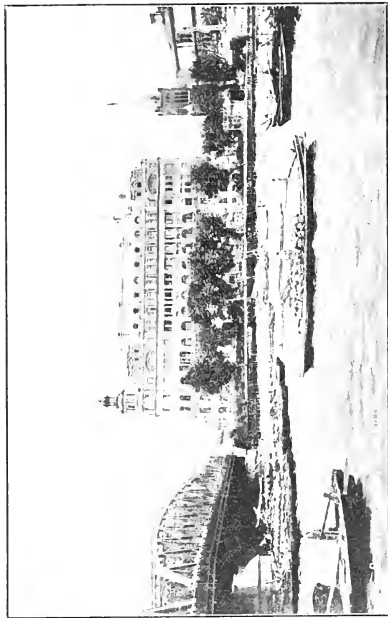
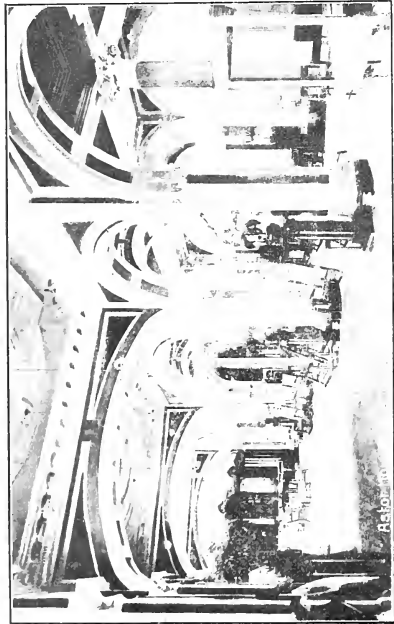
RED FOX.—Forwarded as requested.

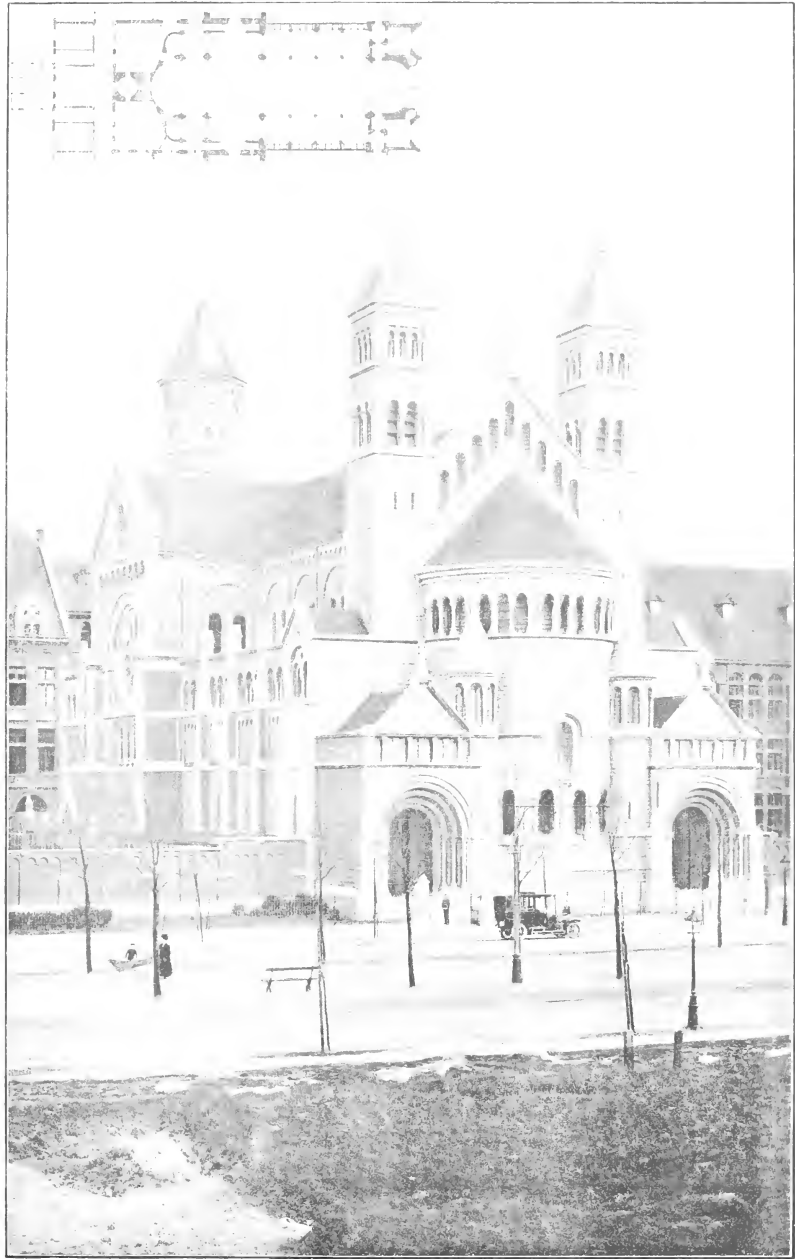
P. F. E.—It is not a very reliable material.

GREENWICH.—Meeting Bro., High Wycombe. See our DIRECTORY under "Chairs for Churches and Schools."

The Haxworth Urban District Council proposes to build a public bath, estimated to cost £200.







CHURCH OF THE INSTITUTE OF ST. MICHAEL. BRUSSELS. M. J. PRIMOY. Architect.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.C.

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CONTRACTS AND CONDITIONS.

We published in our issue of the 19th inst. the best report we could give of the meeting recently held by the R.I.B.A., and of the paper read by Mr. Savin Smith upon the R.I.B.A. Conditions of Contract. There was, as will be seen, a good deal of varied discussion; but we must say that most of it wandered far away from the practical points at issue. One of the speakers seems to have wound up his address by saying, "In fact, they should talk less and do more." This was a summary of his own view that architects should pay more attention to the carrying out of their own business. But the remark appears to us to apply to all the endless debates of both the Institute and the Society. That is to say, to architects collectively as well as individually. The speech made by Mr. R. L. Harrison, solicitor, was, perhaps, the most illuminating. He is doubtless aware of the article on "The Responsibilities of Architects" in our issue of January 5 this year, and our other article on "Specialists or Sub-Contractors" on March 22. There were, however, other speakers who evidently had not troubled to notice our clear statements of what the High Courts and the Court of Appeal had recently decided. They again freely dealt with the verdicts of juries or the judgments of Referees upon special facts as if these made cases of binding authority to be followed by the Courts in other and different sets of circumstances.

It appears that the present R.I.B.A. form of Contract to last five years to make, and although it may have been so far the time, it now needs modernising. We believe a committee is still sitting upon the subject, and is likely to do so for some years. But the really serious thing is that there appear to be so many otherwise able and intelligent and artistic men who seem to be quite unable to grasp a simple legal proposition. For example, there is the law of principal and agent existing and well established. It is clearly defined, and is accurately known to most lawyers. But architects, in the way of their business, seem to forget that there are any legal rules outside the printed form of contract for the job with which they are concerned. Nor do they generally appreciate the fact that this contract is not a sacred or moral code, binding upon all who have anything to do with the job; but merely an agreement between the parties who consent to its terms. Thus they go on making their own bargains with specialists for goods or work, and imagine that by putting their names in a

form, which none of them have seen, they are bound by its provisions. Then, when this building owner is sued for orders given by them as agents, they complain that the law regards them simply as agents, when it is hard to see how, in respect of these matters, they can be anything else. Architects had better cease giving such orders, so by making separate contracts in their regard by which it shall be clear that they are legally sub-contractors, upon which kind only can the general contractor be made liable.

We note that Professor Reginald Blomfield said that in his own practice he did not, as a rule, have any sub-contractor, as he preferred to make a separate contract for each. This seems to us to be, from both a legal and a business point of view, the safest and the simplest plan. It appears also to be the usual plan in France, where they know something of architecture, and also of business. There the sub-contractor almost entirely disappears, because each trade has its own separate contract. We have a good deal to learn from the French people as a logical and level-headed nation, and it is certain that by their method they escape the solving of those legal puzzles with which we have lately been bothered. The Professor's reason for having a separate contract is also well worthy of being noted. For he said that by doing so he dealt with the man himself, and, further, he saved the building-owner the profits which would otherwise go to the pockets of the general contractor. We do not propose to dwell upon this point because we here come upon such deep matters as disbursements and commissions, and what they are and where they go, and other things which we are quite unable to deal with properly. But there is the fact at all events, that good architects and practical men of business can and do make separate contracts with specialists, which they can both understand and enforce, and so keep clear of muddling up with the general contract for the building. Nor need these distinct arrangements be made upon long, printed forms, with numbered paragraphs and a whole apparatus of provisos. In law a contract means merely a promise and an acceptance, and it is generally found more workable the simpler it is in form.

We cannot follow the various points raised about negligence, because all these matters are questions of fact. But there is one point of principle that should be noted, and that is whether an architect is to be regarded always as the arbitrator as between all parties to the

building contract. It is quite clear that this he cannot have it both ways. He cannot claim to be merely the agent of the building-owner at one time, and at another, a fully authorised arbitrator. If our Institute or our Society could get together a few guiding clauses as to the legal effect of which they were quite certain, and could form out of those the essential of every building contract, a long step would be taken in the direction of peace and prosperity. Details could be added, as required, to a form which began by defining the true and legal position of the parties, and the whole should be reduced to a simple contract such as is used amongst commercial men. Different trades have their contracts of bargain and sale, which they know and understand when they use them. There is, and can be, no dispute as to their essential meaning, although questions may arise as to facts and details. Perhaps some day our various committees will achieve a similar sort of building contract for our profession's use.

AMERICAN FOUR-FAMILY VILLAS.

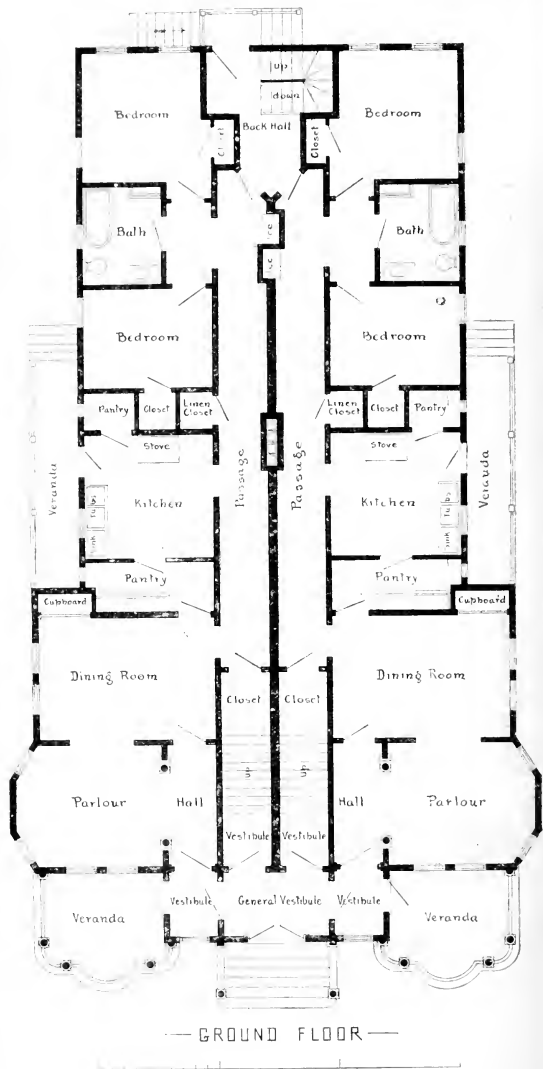
By GEORGE ASHDOWN AUSLEY, LL.D., Architect.

In suburban districts or estates in which land is valuable, and especially where it is of importance to have frontages narrow in proportion to available depths, it may be found desirable to erect four-family villas, of a securely and thoroughly convenient character, after the manner followed in certain districts in the United States. The description of the characteristic planning of such a two-story four-family villa forms the subject of the present short article, illustrated by plans which I prepared for owners of property in the neighborhood of the city of Newark, New Jersey, U.S.A. The proper aim of the architect, in this direction, is not only to plan dwellings of the greatest accommodation and convenience, within the limits necessarily imposed by the cost of erection and the moderate rent to be derived, but to impart to the exterior of the building a purely single-villa appearance. It is always desirable, as experience has proved, to mask to as great an extent as practicable any direct indication of the multiple residences, such as showing several entrance doorways and other self-evident indications of internal divisions. In the case of the example of which the plans are here given, the appearance was secured of a large and securely single villa, symmetrically treated, and presenting a single and dignified

entrance-door. How this has been accomplished can be readily understood on examining the plans. While a symmetrical treatment is there shown, it is not always necessary; but it may be remarked that a decided departure from it has been found to be attended by additional expense and some sacrifice of convenience. Four-family villas are only to be recommended when the separate dwellings therein are small, and suitable for small families in which no servant will be required. All possible internal convenience, calculated to save household labour, and a thoroughly respectable and even dignified external appearance (in which useless and meretricious ornament should be conspicuous by its absence) are the chief factors of success in the profitable renting of villas of this compound class. There is a call for hundreds of them in the suburbs of London and other large towns, to be occupied by respectable tenants who have only small incomes, but whose natural ambition is to reside in a house of good appearance in a select neighbourhood.

As no Basement Plan accompanies the Ground and First Floor Plans given in this article, a brief description of its arrangement must suffice. The basement is excavated throughout the entire area occupied by the villa, having a clear height of 8ft., its outside walls being carried sufficiently above the ground level to admit of direct lighting by windows therein, and of the insertion of convenient coal-shoots. The interior of the basement is divided into four portions, one for each of the dwellings above, containing independent heating apparatus, coal-storage, etc. The coal is delivered through iron hoppers, shoots, hinged at bottom, and which fall outward at a convenient angle to receive the coal from the delivery sacks or baskets. When not in use, these hoppers are closed flush with the wall, and locked. Each heating apparatus has a special smoke-flue, so that anyone can be operated independently of the others, commanding its own draught. In a building of this class, necessarily long and narrow in its divisions, steam-heating is to be recommended, unless central heating is confined to the reception rooms and passages, when the hot-air system can be adopted. In such a four-family villa built in England, fire-places would probably be insisted on for occasional use, when the hot-air system will be omitted from the bedrooms. The basement is reached from all the dwellings by the stairs in the rear hall of the building, shown in the Ground Plan, and an additional general entrance is provided from the outside, through which anything can be taken into or removed from the cellars.

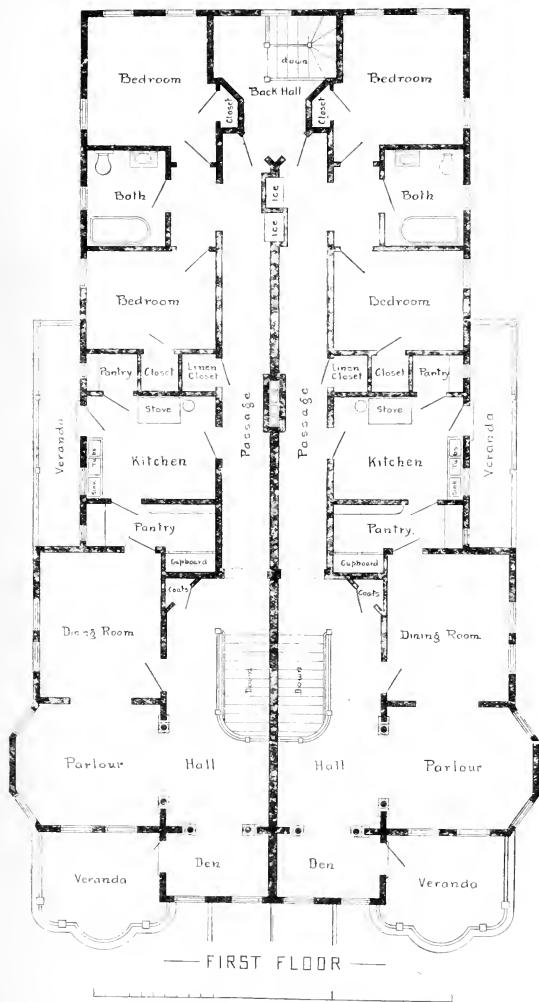
On examining the Ground Floor Plan, it will be seen that the front of the villa has an advanced central portion, flanked by two projecting verandas, ornamentally treated in front, and so far masked by the central portion as to prevent the necessity of persons waiting in one being seen or heard by persons occupying the other. A complete separation of this nature is always desirable. As I fully pointed out in my article on "The Planning of American Suburban Residences" (*Building News*, March 22) the veranda is a most important external adjunct to the generality of American residences; indeed, something of its nature is commonly found in those of a very humble character, and I ventured to remark that the veranda would be a very welcome addition to our own suburban and country residential houses. It can be very simply designed and constructed at a small cost, and so far as I can see there is no reason why it should not be as pleasant an outdoor adjunct here as it is in a country which ex-



AMERICAN FOUR FAMILY VILLAS.

periences greater extremes of temperature. After all, it must be realised that the veranda is only an extension of the old English seated porch, so much beloved by the village zephyrus in the pleasant evenings. For further particulars respecting the American veranda I may refer the interested reader to the article alluded to above.

The central portion contains the principal entrance, common to all the four dwellings, and treated in a dignified manner, and protected by an advanced open porch. The doors open into a general vestibule, in which are the four doors communicating with the several dwellings. The vestibule is amply lighted in the daytime by the large, bevelled, plate-glass panels in



AMERICAN FOUR-FAMILY VILLAS.

the entrance-doors. Generally, such doors consist each of a narrow frame of oak or mahogany, containing a single sheet of thick plate-glass, widely bevelled, having, with its bold, bronze hinges and furniture, a very handsome appearance. The internal doors on the right and left of the general vestibule open into the well-lighted vestibules of the ground-floor dwellings, while those opposite the principal entrance open into the vestibules and staircases which communicate with the two dwellings on the first floor. These staircases and the halls to which they lead are lighted from

the ceilings with skylights above. By the arrangement just described, all evidence of multiple entrances is effectually masked from external observation, the advantage of which has been already commented on.

All the dwellings are separated from each other by a thick central brick wall, extending from the general entrance vestibule to the back hall, and by thinner brick walls around this hall. All the flues from the heating apparatus in the basement are formed in the central party-wall, as shown, requiring, accordingly, a single chimney only, and reducing expense in

that direction to a minimum. Recesses are formed in this wall for the reception of the ice-boxes and refrigerators; these are located close to the rear entrances, for the convenient delivery of ice and food which requires to be placed in the refrigerators. Drain-pipes are connected with the recesses to carry away the water from the melting ice. In this country such arrangements are not so necessary as they are in the United States, yet the refrigerator would be a great convenience in our hot weather, and it is to be regretted that it is so seldom introduced in our private houses. When better arrangements are made for the supply of ice at a moderate cost, the refrigerator will soon be looked upon as a necessary article in domestic economy in this country.

As both the dwellings on the ground-floor are precisely alike in their arrangement and accommodation, it is only necessary for one to be briefly described. The open disposition of the hall, parlour, and dining-room is a characteristic of American villa planning, and while it may not commend itself to the ordinary English idea of comfort, experience has shown me that there is much to be said in its favour, especially in cases where the reception-rooms are necessarily of small dimensions. It must be quite evident, I venture to think, that the open effect produced by the arrangement of these small rooms, as shown in the plan, is much to be preferred to the confined effect produced by similar rooms separated in the usual English fashion, and entered by single small doors only. Of course, this adoption of such an open disposition would call for a system of general heating, which I strongly commend to the attention of our villa architects and builders. It would be very convenient to have sliding doors in the wide opening between the parlour and dining-room, as shown in the plans of the Two-Family House, given in my preceding article, in "The Planning of American Suburban Residences," which would give complete separation to the latter apartment when desirable. Such an arrangement would add very little to the cost of construction. An ornamental character is imparted to the hall and parlour by the insertion, in the wide opening between them, of pedestals supporting small columns of the simple Roman Doric Order, in the positions indicated. As a rule, an ornamental feature of this class is left entirely open; but sometimes it is furnished with portieres. The opening between the parlour and dining-room, when not fitted with sliding doors, would invariably be hung with portieres. When the door between the vestibule and the hall is closed, the latter may be considered as forming a continuation of the parlour. Should a fireplace be required in the parlour, it can be conveniently located between the windows in the bayed portion of the room. The dining-room is furnished with a cupboard, having drawers below, and glazed doors and shelves above, practically fulfilling the office of a sideboard. The doors from the kitchen to the serving pantry, and thence to the dining-room, are hung on spring-hinges, and open freely in both directions, immediately closing when released. This class of door is most convenient for a person passing to and from the dining-room while carrying dishes, etc. The third door in the dining-room communicates with the passage, and all the remaining portion of the dwelling. Adjoining this door, in the passage, is a good closet, which can be used as a store closet or put to any other desirable use.

The kitchen is conveniently placed with respect to the dining-room, and is furnished with a gas-stove, a cook's pantry, a sink, and two washing-tubs. Its outer door opens

set the patterns and line up in correct bond with the rest of the brickwork. These bricks are at present mainly used at an angle to set the courses; but there is really no reason

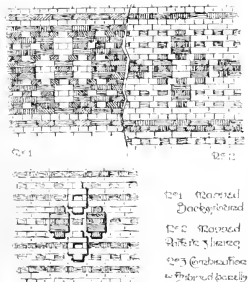


Fig. 8.

why they should not be adapted and utilised in a far wider field, as a valuable adjunct in the setting of ornamental work, obtaining a large amount of expensive cutting. Fig. 8 illustrates a system of clustered diaper patterns, merging into that of raised panelling, producing a combination effect.

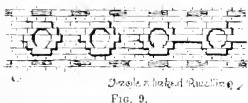


Fig. 9.

Another method of varying this ornament is by linking up the panelling indicated by the succeeding figures—Nos. 9 to 12. Panelling of the type shown by the first illustration on Fig. 10 would prove useful for positions which might need a vertical shape; other designs for such positions could be readily

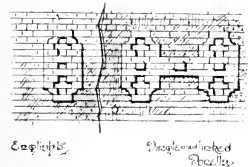


Fig. 10.

adapted in great variety. The system of raised panelling is far better varied, as shown by Fig. 11, running in groups of two, three, four, or more, according to the total extent of the ornament. Also, by alternating or linking up with single panels or pairs a far more pleasing result is obtained than by

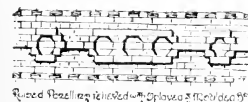


Fig. 11.

a monotonous repetition of single patterns or groups of patterns alone. In fact, the more such are varied, in a system of design, with the other methods of brick ornamentation, the better are the results obtained from a

decorative standpoint—something, for instance, after the style shown by Fig. 12. The central pattern here indicates two methods of still further picking out the panel portions, by darker tones or different colour edging and centres. Either system could, of course, be used for all four panels, varied with the combination as shown, which, again, might be still further varied by detached panels at another point, instead of linking

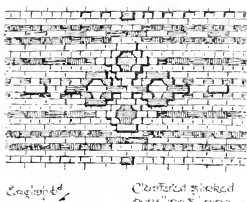


Fig. 12.

together. This, with the combined variation in lining also, largely aids in breaking up that purely mechanical effect which might otherwise be produced. From the style of linking up small panels, with a narrow band of one-course projection, we come to that of a broader system of band panelling, as illustrated by Fig. 13. A perfectly continuous band, of the type shown, could also be used, without linking or breaks, which, with com-

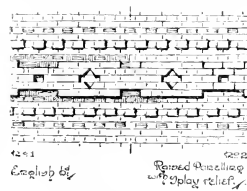


Fig. 13.

bined variations of other moulded bricks in the sunk patterns, would look well as an intermediate relief or frieze.

The same system, grouped and alternated in various depths, or castellated, with the introduction of different lining or sunk effects, produces some good results, as shown by illustration 14. Fig. 15 illustrates a method of adapting the cavetto and ovolo moulded bricks to a finer system of orna-

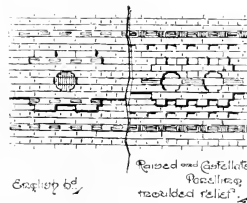


Fig. 14.

mentation, in a specially-set band course of two-brick widths; this can easily be arranged in a sound, constructive manner. These finer patterns would be extremely useful for many positions where the larger systems of panelling previously illustrated would prove too coarse. In the example shown the two 9in. bricks which go to form the pattern would have to be slightly cut down and rubbed. The pattern could, however, with a

slight variation in width, be arranged to obviate any cutting at all; but this would give a wider effect in the pattern line.

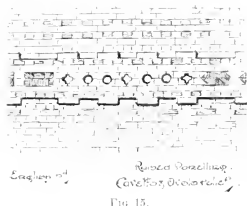


Fig. 15.

would not line up symmetrically with the coursing bond of the wall face above and below. Such points of variation require studying out in detail with regard to adaptability, where the score of expense makes

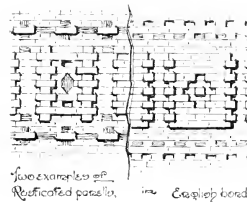


Fig. 16.

such desirable of consideration. The two designs in Fig. 16 illustrate another different system of brick panelling, by means of a very picturesque method, which may really be termed rusticated work. This system,

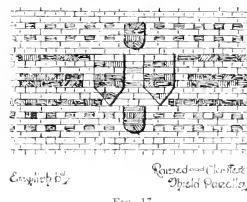


Fig. 17.

applied either to panelling as shown, or other branches, would admit of the production of a large variety of designs. Another effective and highly decorative feature which could be well introduced to this class of ornamental



Fig. 18.

work, largely, too, by inexpensive methods, is that of the shield panel. By the use of ready-made half-bricks, the bull-nose and the splay, scarcely any cutting is required by the examples illustrated in Figs. 17 to 21—in some instances, none at all, where a pointed coping can be adapted. At the same time,

Greece, and Egypt in 1824. One of the original founders of the Institute was John Goldieut, who was born in 1793, and died in 1842. By him we possess about 300 sketches, and 100 designs and projects of his own. Many of these are some of the most decorative work, probably done for his "Specimens of Ancient Decorations from Pompeii," published in 1825. There is a volume of strongly coloured drawings by George Wightwick (1802-1872), an extraordinarily voluminous author on things architectural. We have a further volume by George Wightwick, a complete Pompeian imposing title of "My Liber Veritatis." A volume, presented by Professor Donaldson in 1864, contains some water colour sketches, done between the years 1816 and 1819, by Joseph Woods. The drawings are not very good, but those of the Treasury of Atreus and the Lion Gate at Mycenae, are interesting. A curious series of sketch-notebooks—no less than sixteen volumes of closely-written and minutely-drawn notes—are the result of John Wolfe's three or four years of travel in Italy, Greece, and France in 1820. Of Elmes's work we have a large collection of drawings and designs, and full-size and other details. There are, mostly drawn by his own hand, several interesting alternative treatments of St. George's Hall, both interior and exterior. The name of T. L. Donaldson seems to carry us very far back, for, though he only died three years before Nesfield, we have two volumes of sketches done in Greece and Rome as early as 1819 and 1821. Curiously enough, one of these is a large volume of sketches of Gothic work, to which one would not have imagined he had much leaning. The list of the works of Donaldson in our library is, I think, longer than that of any other architectural author. A donation to the library by Mr. C. E. Sayer, made some three or four years ago, was a volume by Alexander Roos, a German architect, who was brought by Beresford Hope to England. It contains many beautifully-executed little drawings of coloured decoration. Decimus Burton presented to the library, the year before he died (which was as recently as 1851), forty-two drawings of Classic relief ornament, stone or marble, carved decoration of architraves, strings, etc. They are drawn, and well drawn, on tinted paper in black crayon touched with white. By William Burges we have three scrapbooks in which have been inserted drawings of original designs of stonework and of silver- and goldsmiths' work, domestic and ecclesiastical. Two of these contains several designs of fonts, with their prices attached, all of which, by the bye, seem, in the light of present-day estimates, to be distinctly high. I can only imagine this to be pot-boiling work done in his earlier days for some firm. There are four volumes of a modern architect whose influence on the architecture of our own time has, in the opinion of many, not yet been fully recognised. Some of the evidences of the amazing fertility known to many who, like myself, were brought into close contact with William Eden Nesfield are to be found in the four volumes of his sketches which the Institute possesses. All of the drawings of R. J. Johnson's "Specimens of French Architecture," published in 1864, are contained in two of the three volumes presented by his widow, the remaining volume consisting of sketches of English Gothic work, the execution of which is not on the high level of the French sketches. In 1867 there were presented, through Professor Donaldson, by Texier himself (a gold medalist of the Institute in 1836), five volumes of sketches and details, in gold and colour, of mosques in Constantinople, one volume dealing specially with St. Sophia. The latter Professor Lethbridge refers in his "Sancti Sepulchri." The volumes of Devey's sketches are somewhat disappointing. The majority are of chimney-tops. A collection of very beautiful drawings is contained in two volumes, one of twelve sheets and the other of thirty-three, of the coloured decorations of Norfolk and Suffolk churches. The larger volume, with the well-known series of screens and the smaller containing principally roof decoration. These drawings were executed by G. V. Wardle.

Mr. R. Phene Spiers, F.S.A., in proposing

a vote of thanks to Mr. Harrison Townsend for his comprehensive and exhaustive paper, remarked that three or four years ago he himself proposed to write a somewhat similar paper on the subject of books in the Institute library, but had to abandon the idea, and he was glad the lecturer had dealt so fully with the drawings in that collection. It was pleasant to learn that the 16th century work of John Schut was about to be published, for it would be of great service to architectural students; a first edition of Shute's book was issued in 1563, and was followed in 1573 and 1584 by second and third editions. There was in the library a valuable work by Jean Vredena de Vries, of Antwerp, published in 1577. He should have liked to have heard reference made to the drawings of Inigo Jones, and also to those of Anthony Salvin. The Institute had established a British school in Rome, and a great many students would be glad to have their attention called to the measured drawings of Hadrian's Villa, by Thomas Hardwick, issued in 1777. George Hatfield, in 1790, published a series of drawings similar to those executed by the Grand Prix French students. Having referred to the beauty of Texier's drawings of Classic subjects, and to the gift to the Institute in 1848, by J. Wyatt Papworth, of a valuable collection of architectural drawings, he mentioned that W. Eden Nesfield, when a young man, spent his Sunday afternoons sketching details of A. W. Pugin's work at the Houses of Parliament, then in progress. A full description of Nesfield's drawings in the Institute collection appeared in the Journal for 1895. There really was not space at the Condit-street premises for the collection of British Architects to properly exhibit an extensive collection of architectural drawings, nor had they the means to properly classify and catalogue them, and he was glad, therefore, that he was able a few years since, to secure some 1,400 valuable architectural drawings for South Kensington Museum, where they were available for all students.

Mr. E. F. Strange, in seconding the vote of thanks, said the unrivalled collection of architectural drawings was rapidly being widespread, and was now of more than national importance. The drawings by Wardle, of Rood-screens in East Anglia, made between 1855 and 1867, were all supposed to be housed at South Kensington, and he had wished to transfer the copies, they appeared to have, to the museum, by gift or loan, the favour would be appreciated. It was, he would contend, better that a collection of drawings should be all kept together under national custody, and should be topographically indexed where there was sufficient space and adequate means to provide for them, and where they were accessible to all students, as at South Kensington, than that they should be scattered over the libraries of professional societies.

Mr. Radolf Direks, the Institute Librarian, said the lecturer had not referred to the Arthur Cates collection of architectural photographs. He hoped that some wealthy member of the Institute would ere long endow the library and enable it to transfer the copies to its treasures. One of the most interesting of Mr. Townsend's criticisms was his identification of the drawing of the proscenium for the Queen's Mosque of Indrums, with a contemporary descriptive passage which confirmed the view that the drawing was by Inigo Jones. They had no doubt about this before, but it was pleasant to have it confirmed. In his concluding remarks Mr. Townsend had referred to the architects who build "castles in Spain." The most interesting volume of original drawings, from this point of view, was the considerable collection to which he alluded containing the work of Bibiena, Panini, Puget, and others. The designs of the Bibiena family and of some of the other artists were devised as decorations for some Court festival or pageant. The library was fortunate in possessing an original drawing by Puget. The universality of Puget's genius in its most serious aspect, perhaps, had been appreciated by those who

had seen his works of sculpture in the galleries of the Louvre, whatever might be the general opinion with regard to his work as an architect. With regard to the Italian drawings of which Mr. Townsend spoke, this architect had the charge of the erection of Hampton Court Palace, under Wren, and his plans in the volume were well known to historians of the building. The original drawings for the triumphal arches for the entry into London of Charles after his coronation (it should be coronation, not restoration) formed part of the Burlington Bequest collection, and it was at Mr. Cates's suggestion that the speaker compared these drawings with the engravings in the British Museum, with which they correspond, and of which they were, he found, the originals. Later investigation by Mr. Keith, the assistant Librarian, went to show that the arches were unquestionably designed by Gerbert. The evidence on this part was unmistakable. The collection of architectural drawings and engravings held in recent years in the Institute library had received many requests for loans for exhibition purposes, and with the permission of the Council drawings or engravings had been on show at Manchester, Liverpool, and at the Art Gallery at Whitehall, as well as at various International exhibitions. Apart from original drawings, the library contained many independent engravings, or volume of engravings, and prints of considerable value. He was glad to know that, so far from remaining stationary, the Institute collection was in a healthy state of growth.

Mr. W. H. Ward remarked that Mr. Townsend had done them good service in calling attention to the lacunae in the Institute collection, and he trusted that munificent donors would hereafter bear their needs in mind. At present the library committee had but very slender funds to administer as compared with Columbia University, New York, where £1,000 a year was expended on new books, or even with the Institution of Civil Engineers, who grant £600 per annum, of which one half was allotted for binding. At Condit-street the committee had to manage on a mere £150 a year, £40 of which is expended on binding, and a large part of the remainder was laid out on the purchase of duplicate books for the library. They required an additional £50 a year for binding, and another £30 to £40 for buying books and drawings.

Mr. Herbert Batford suggested that the title of Mr. Harrison Townsend's paper should have been altered from "Contents of the R.I.B.A. Library," to "Drawings in the R.I.B.A. Library." He thought the lecturer had somewhat belittled the fine collection of books, and had ignored the valuable great folios. A second and very interesting point could be written dealing with the books themselves at Condit-street, and no one could more fittingly undertake the task, together with the compilation of brief biographies of the authors, than Mr. Dicks. They might usefully have a series of short papers on architects, accompanied by the exhibition of the books, and to be followed by discussions. Many of the great architects of past generations wrote books on phases of their art, before they entered into independent practice, and certainly these works had done much to keep their names alive. With all respect to Mr. Strange, he held that the best depository for architectural drawings was the Institute library. An important omission in Mr. Townsend's paper was the failure to refer to English Gothic Buildings and Ornaments, by the late J. K. Colling. When Mr. Colling was in advanced years, the speaker heard that he was not in affluent circumstances, and communicated with Mr. J. Osborne Smith. The matter was taken up heartily by Mr. Smith, and other friends, and the handsome sum of £100 was raised by which Mr. Colling was enabled to secure the clearing of his days free from financial trouble, and his drawings were secured for and presented to the Institute. Some reference should also have been made by the lecturer to the interleaved copy of Wren's "Parentalia," recently purchased by a body of subscribers.

members, and a so far quite important collection of old paintings of their past presidents.

Mr. Dicks responded to the question by saying that he had not seen the paintings in the past 10 years. He said that he had not seen the paintings in the past 10 years. He said that he had not seen the paintings in the past 10 years.

An exhibition of original drawings in the possession of the Institute is being held in the Institute Galleries to-day (Friday), from 10 a.m. till 8 p.m., and to-morrow (Saturday), from 10 a.m. till 6 p.m., when the exhibition will close.

FEDERAL ARCHITECTURAL BOARD ASSOCIATION.

At the ordinary meeting on the 15th inst., Mr. Gerald C. Hershey, in the chair, the results of the elections of officers for the coming year were announced as follows:

President: Mr. Gerald C. Hussey.
 Vice-Presidents: Messrs. W. Curtis Green
 and Maurice E. Wade.

Ordinary Members: J. Connell Messers, Arthur T. Pyle, Jr., C. Brewer, F. C. Eden, G. Leonard Elkington, Theodore Fyle, Stanley Hamp, A. C. G. Horne, J. Geoffrey Lucas, F. Winton Newman, A. Gilbert Scott, W. J. Lamer.

Hon. Treasurer Mr. Arthur Keen
Editor of the Architectural Association
Journal Mr. P. Cui de Lalontaine

Hon. Librarian, Mr. W. H. Ward
Hon. Secretary, Mr. Herbert A. Hall

Votes of thanks to the scrutineers, retiring members of Council, etc., having been carried, Mr. Laurence Weaver then gave a lecture on

SOME SCOTTISH HOUSES OF THE REUNIONACE.

Illustrating its remarks by many lantern slides, he contended that, thanks to the limitations of Scottish architectural literature, many regarded the Baronial building as the beginning and ending of Scottish architecture. That was not so. Although there was nobody in Scotland to take the place of Inigo Jones and Wren, and the men who came to Scotland in England were not nearly so good as the Neo-Classic architects in Scotland, started by Sir William Bruce. The first introduction of the Renaissance in Scotland was in 1529, when James V, returning to Scotland with his second bride, set about improving Falkland and Stirling Castles. Hamilton, of Ayr, and Craig, of Glasgow, and James Craig, of Ayr, who having started his architectural career by killing a carpenter, and had at the Court of Francis I become imbued with the ideas there prevalent, was James's Master of Works at Falkland and Stirling, and was appointed Surveyor-General of all the Royal Palaces in 1539. He was executed in 1541, and his place in Scotland in Renaissance architecture was filled by another six or seven years.

added to. Some fine plasterwork there was more advanced in design than some of the other extremely barbarous work. Crawford had remained unaltered, a large measure.

New Hants House, just outside Musselburgh, whether by Wm. Adam or not the lecturer did not know, was not very attractive, nor was it very enthusiastic about Dr. Hume, near Edinburgh, which, no doubt, was Wm. Adam's work. Robert Adam built Glasgow House, so that Lord Wemyss might not have to travel six miles to play golf; but it proved so damp that it was unsuitable for eight years, till Young altered it into a comfortable, cheerful house, no longer a house by the sea. It was not more a slave, and one in it, F. C. Frank Devis, of some what remarkable plan, said to be a whim of the occupier.

A third denunciation followed. Mr. Guthrie, Mr. J. A. Fisher, Mr. Curtis Brewer, Mr. C. C. Pender, Mr. H. W. Patton and Mr. W. H. Weaver took part, the only very pertinent comments being made by the last mentioned speaker, who was under the impression shared, I fancy, by more of us, that there are good deals of high-civilized work in Scotland besides the few examples quoted and shown by Mr. Weaver. In reply to the first speaker, Mr. Weaver said his photographs were only the work of one man in Scotland; but he had many others, and several of them were of houses by Wm. Adam.

THE SOCIETY OF ARCHITECTS.

The sixth ordinary meeting of the Society of Architects for the session 1911-12 was held at 28, Bedford-square, W.C., on Thursday, April 11, 1912, at 8 p.m. Twenty nominations for Membership and six for Studentship were announced. The ballot was then taken, and the following candidates were declared to be duly elected:—

A. Members.—Brown, J. F.; Archibald, J. G.; Trimby, R. G.; Seaton, J. G.; Gillingham, J. F.; W. C. Thompson, North Bar-street, Bexley, Yorks., Central.
Gerard Seymour, 15, Charing Cross-street, W. C.

A. Students.—Bell, Charles, 4, Mountpy-square, Dublin, Clarke, Peterdale John, 24, Castle-street, Liverpool, Coupland, William Vernon, 31, Upper Marlborough-street, Shrewsbury, John W. Papp, 15, Dale-street, Lincoln, Domesday, W. W. Hall, Flinton, Hales, Gerald John Harwood, 24, Eddison-road, Putney, S.W.; McGinness, Edgar Francis, 9, Linvale, Earldale, Liverpool, Moore, Alfred Ernest, 101, Te-telephone road, Southsea, Portsmouth, R. G. W. Jones, 10, 10, Berkham Avenue, Beckenham-Surrey, Timlin, William Myles-on, 25, Warren-street, De Beers, Kimberley.

Mr. C. McArthur Butler, F.C.I.S., secretary of the Society, then opened a discussion on "Some Principles of Professional Practice and a Code of Ethics," which we gave in our issue of April 12.

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ME. R. C. LOWELL, ACHA member of the Institute, in his opening remarks to the secretariat and the idea of forming a Council of Professional Control was a very excellent one, provided an assurance was forthcoming that it could be got together promptly. He, with the object of gaining greater unity, there were to wait for the co-operation of all the allied societies, the Royal Institute, and the other institutions mentioned, he could easily foresee that the matter would drag on for some time, and he would not like to see the long and tedious negotiations with regard to Registration, and the fact that itself upon the fact that it was the forerunner of Registration, and he saw no reason why they should not adopt the same attitude with regard to the suggested Code of Ethics and he thought the Council would be acting in the best interests of the profession by pushing the matter forward immediately. As a society, it was their duty to go ahead and do it, and that was the only way to develop the question of professional unity. In putting forward a Code of Ethics for the profession, they should first of all consider their own members, who would in all probability look for a code of a practical character. The interesting letter which they had received from Nottingham touched the spot very accurately. After all was said and done, they would have to go back to the drawing board, and he thought he had tried to be as modest as possible, and he thought that he could, those who were doing good work the rank of their members, did not care to hide

their light under a bushel. He could not see any difference between putting the architect's name on a board and having it engraved on a corner-stone of a building, and he would urge that a very comprehensive view of this question should be taken when the matter came up for consideration.

Mr. A. O. Collard, FRIBA, in summing the vote of thanks, said the subject appealed to him as a lecturer at the A.S.A. School for something like fifteen years on professional practice. He had listened with keen enjoyment to Mr. Butler's paper, and thought it would come as a surprise, possibly a painful surprise to many architects, that any such suggestion as a body to control professional practice and to institute a Code of Ethics was necessary or desirable. Most of them had been members of the

Many of them, he assumed, managed to get along in a profession without depending on other people's consciences. But he was admitting any professional enormity, possibly for want of courage, but more likely for want of a high moral rectitude. He did not suppose Mr. Butler would have braved the matter at the instigation of his Council were he not in possession of some facts which showed him the necessity of some Code of Ethics. In most cases where there was some great evil to be cured and remedies were suggested, it was usual to start with a general matter, but he would like to receive some indication of the extent of the misdeemeanors which finally were known to happen and which had occurred in the

past. Though the offences, whatever they were, should be tabulated and classified, and it had often occurred to him that it would be a warning to any possible backsliders if the Institute and the Society were to have an official record of professional conduct which came before them. He thought Mr. Butler's suggestion might be carried out so far as requesting the different societies to appoint delegates to consider whether a Board of Professional Control was really desirable, and it would be absolutely necessary to decide the matter one way or another in the minds of those who were the definitely responsible persons in the nature of the things which had happened. There were two broad divisions of misdemeanour: that against a brother professional man, and even worse conduct against the public. Regarding the latter, there was the Common Law to deal with such matters, and he did not know whether Mr. Butler suggested that the Law Society should take action against offenders by the proposed Board, or whether the latter was merely to control the action of members of the profession in connection with their own brethren. He wondered whether the architectural profession was on all fours with those other great professions of Law and Medicine. He agreed that public attention was being drawn to the fact that certain members of the *«* professions were seriously dealt with, but he thought that in nearly every case it was for offences against the public, so that he did not know whether they could base their reason for wishing for such a controlling body on the professions of Law and Medicine. He wondered whether the draft Registration Bill was not famous, and which had proved to many minds so highly desirable, contained any reference to such a Board of Control and Code of Ethics. The author had referred to a Code of Ethics which was apparently in force for civil engineers, and perhaps he could quote from it, to show to what extent that code would correspond to one of the kind he had in mind at that point. He did not understand the reference to the possibility of such a code limiting and hampering members of their profession. It was interesting to note that in Canada architects were compelled to belong to some professional body, and that there was a Code of Ethics which, apparently, was administered under an Act of the Government of Ontario. He thought it was odd to grow up there in a new country rapidly growing there might be some members of the profession who would not find sufficient work of precisely an architectural character, and

might, therefore, become involved in other work, to the disadvantage, perhaps, of the profession generally, and it was very possible that it was from the necessities of the country that the necessity for regulation arose. Mention had been made of a schedule of the principles of practice and a Code of Ethics. Has it suggested that there should be two distinct schedules? Was not a schedule of the principles of practice the same thing as a Code of Ethics? The reference to the standard of architectural competence as the nucleus of the country public caused him to wonder whether it often happened that architects were invited to accept work on inadequate terms. If it was so, it was quite outside his knowledge. He was not sure that it was not more distinguished to be excluded from those titular honours to which reference had been made. An architect was usually so absorbed in his work that he made no effort to achieve greatness in the form of knighthood, and by the time an important building was completed the architect had often experienced so much trouble with his clients in large works in order to achieve his desires in producing a fine building, and there had been so much friction from time to time, that when the question of honours arose the architect was neglected. There was always someone who was in touch with the powers that be; whereas the architect seldom, if ever, was, and he did not think that the architect was altogether to be pitied for not gaining the public distinctions. Mr. Butler had quoted some words from the American Institute which were so brief and accurate and so admirably set out that they would occur naturally to anyone considering what the functions of an architect really were. It was suggested among other main principles that arrangements should be made for supplying the client with a duplicate set of drawings, etc. The client ought to pay for these, as before the end of a job so many variations had usually to be made from the original design as to necessitate a fresh set of drawings, and if the client was told beforehand what it would involve it would be found that most of them would agree without demur. With regard to specific charges of architects, he noticed that it was suggested that a minimum charge should be made. He thought with Mr. Butler that it was a very doubtful advantage to have any fixed charge whatever, and that it would be better to leave it open, so that a man could charge whatever he thought himself worth. There should be nothing to prevent a man charging ten per cent. if he thought he could get as much as that, and aware that a certain special work a man might have trained himself thoroughly and the value of his work be worth two or three times as much as the ordinary scale gave him. It was rather severe on young architects to suggest that they must not compete with regard to fees or undercut to secure work. He knew that some of the public thought they had a perfect right to offer a young architect less than they would to an older man, although he might be the more skillful designer, and he did not see how that could be met. It seemed a little hard that young architects should not be allowed to work at a lower figure, bearing in mind the fact that many of them were able to work at home, and so avoid the heavy charges which some of them had to bear before they made a penny. Some hard and fast rule was drawn to define what were and what were not honorary services. It had often happened that an architect gave his services gratuitously, but after his expenses had been paid there was very little difference. A man should not be able to obtain work on apparently honorary terms, doing some other man out of the work, and yet reap some benefit from it. He noticed that expert witnesses should be paid a proper proportion to the responsibility and difficulty involved, but who was to be the judge of that value and responsibility? Naturally they themselves knew what it was worth; but was it suggested that architects should be the judges of their own value? That was the

point upon which the Courts came into conflict with them, and it was also the reason why the Courts sometimes ignored the Institute's scale of charges. He did not quite understand what was meant by experts naming prices in competition with each other; did it mean that architects should not tender in regard to their fees? A good many points were introduced which scarcely referred to a Code of Ethics, and were the ordinary things which one knew about. For instance, a paper was read on the proposed initiative on the part of craftsmen and other workmen should be recognised and encouraged. They were all only too pleased to get into touch with the craftsman; it was an education itself to the young architect, and a charming part of the work for older men. There was one difficulty, however, especially on big jobs, in the shape of the foreman, who hated to see the architect stop one of the craftsmen, and whenever possible pretended that he was not there. Most of them, however, had sufficiently snubbed the foreman to keep in touch with the craftsman. With reference to the building trades and architects not engaging in any work unless as owner, what view were they to take of the peculiar scheme connected with Gidea Park? The promoters, no doubt, were imbued with a desire to benefit the younger members of the profession, and so far they ought to be very grateful to them; but, at the same time, it brought about a state of affairs at the present time which most of them deplored. Many young architects with very little money had become involved in speculation with one or two houses, and were associated with builders in a peculiarly close fashion which could not but tend towards lowering the standard of professional life that was his own opinion, and he thought that if it were possible for the suggested Board of Control to put a stop to schemes such as that it would be doing a very great work. They must acknowledge that in all probability the promoters of the Gidea Park scheme had no such injury to their profession in their minds; they must give them the credit of wishing to do good both to themselves and to young architects; but he doubted if the same gentlemen would indulge in that sort of scheme again. With regard to advertising, it was a very vexed question as to what was advertising and what was not. He was sketching only recently in an old part of London, and upon an adjacent site was a huge board with the name of a well-known architect upon it. He had no personal feeling in the matter, but he doubted whether the architect in charge would be considered as advertising or whether it would be regarded as an announcement on behalf of the client that the site was available. The whole question bristled with difficulties. Some might say that if one sent a beautiful design to the black-and-white room of the Academy with one's name written large upon it, such a course would be advertising; others might say it was not, and he thought that Sir Ninian Stephen might have a good deal on his side in making the remarks that he did. Although he had never done either himself, he could not see the difference between putting one's name on a board and putting it on a building after completion. He thought if the architect were to put the design on the board as well as his name, it might help matters, because they could then see the beauty of the work on the inside of the building, and the case might be side by side with the name of the architect who was responsible for it. When they attached initials after their names it was always considered legitimate in regard to professional matters, and he asked how the matter would be regarded when they were used outside the profession—say in social matters. Would it be regarded as derogatory? If one belonged to a distinguished society, the renown of that society would be spread by the use of its particular initials, he thought. They all must deprecate the fact that sometimes anonymous communications are made to the Press; he did not think that many architects took advantage of the columns of

the Press for abusing other architects; but he supposed that architect editors would still be allowed to write anonymously, or was it suggested they should be stopped? He was not sure whether it would be wise for a Code of Ethics to include a reference to architects taking an active interest in the proceedings of their particular society, because if every member turned up at their meetings they would have to hold subsidiary meetings all over the building. Mr. Butler had said that "even under his client's instructions an architect should not 'engage in or encourage any practice contrary to law or hostile to the public interest . . . as he is not obliged to accept a given piece of work.'" He (the speaker) was not so sure about that. The necessity to earn a living was the devil which drove most of them, and he could easily believe that under certain circumstances they might be driven to do it. Referring again to the scale of charges, none that he had ever seen formulated had been satisfactory, and if anyone ever could suggest a really satisfactory scale he would achieve renown in the profession. He learnt that in Canada "membership in local associations of architects is compulsory by law on those who desire to use the title of architect." He did not think many of the architects much about that they were called, provided they could get the work, and he could not see that whatever a man might style himself it would prevent him from doing architectural work. If they had a law limiting the practice of architecture to those who had qualified themselves by the customary methods it would prevent the genius from arising. Take, for instance, the surgical profession; they were all aware of the great homester, an absolute genius in the art of setting a broken limb and quickly doing it without injury and without any surgical qualification; yet the man was a born genius. Was that sort of genius to be cramped and prevented from rising?

Mr. W. H. St. Smith, F.R.I.B.A., said they had met to consider their moral obligation not only as individuals but in their corporate capacity as a class of public servants, and this not merely from the point of view of expediency or custom, but, as he understood the author of the paper to imply, from the loftier standpoint of character as formed on the universally acknowledged, but little obeyed, axiom of doing to other men as we would they should do to us. This principle might be interpreted thus:—We do not desire to benefit ourselves at the expense of the interests and rights of others, whether clients or builders—e.g., we will not use our corporate powers (statutory or otherwise) to restrict the freedom of any man to employ any amateur instead of one of our profession if they prefer to do so. He did not know of any greater want in the architectural profession than a well-earned, manly, and in the subject approved by the councils of the various societies, which could be put into the hands of every student as a textbook on this vital question. He claimed for the British professional unions (as distinguished from trades unions), that the vastly improved public esteem and confidence or status they enjoyed is due to their having in the past laid down and pursued a policy based, broadly speaking, on the following lines:—

1. They have endeavoured not to limit the freedom of individual members beyond the necessary protection of the equal rights of his fellow members.
2. They had never attempted to force employers to remunerate their services at a fixed or unreasonable rate. The civic might reply that they have done this, and might be limited enough by the fact that fair payment has been forthcoming in spite of this corporate disability is proof of their sweet reasonableness!
3. No one was granted membership whose training and skill was below the standard the Society set up, and this educational policy was diligently organised and improved.

1. A standard of moral etiquette was demanded. No commission was to be accepted from third parties. Members were expected never to depreciate the qualification of their colleagues or to tout for employment where others of their calling were retained, etc.

the limitation of the numbers of members or of their hours or output of their work was ever attempted. It was realized that the man of exceptional talent and endurance was entitled to translate his superior powers into proportional wealth; and that the man with heavy domestic responsibilities to burn the midnight oil

6. No inducement to join the Society was offered other than the advantage that knowledge gives and the fact that corporate action in resisting injustice was more powerful than individual effort.

7. The question of remuneration was the 1st point dealt with, for the reason that to ensure the confidence of employers, and the consequent increase and permanence of employment, freedom of contract was necessary, and the public must be convinced that it served their interests best to employ those who had strenuously fitted themselves to be experts, and whose claim to the profession was acknowledged by their own class—their rivals.

It was assumed, and he thought justly, that clients were willing to pay reasonable fees if the advantage was clearly commensurate. The policy was, in short, -

a. To benefit the public by giving the very best of services.

2. To benefit their members by fellowship and by due preparation for professional duty, and thus enable them to reap the confidence, work, and pay which invariably result from such a policy.

By organised resistance to frustrate attempts on the part of individuals, corporations, or of the Legislature to impose unfair or unjust conditions on their members, should such moral or legal resistance be subversive, the obvious and final resort be the corporate withdrawal of service. This weapon the medical profession had been obliged for the first time (this winter) to be called to use, and architects, though not yet immediately called to use democratic employment and democratic legislation, had to adopt a more limited degree by their recent agreement not to enter competitions unfair to their members.

It is abundantly clear, therefore, that the confidence they had won had been much more due to an ethical policy rather than by one of expediency, and in discussing the question, he hoped their past experience would encourage them to continue on these general lines while seeking to elucidate, emphasise, and enforce them. This, he continued, was

unfortunate. Thus, he gathered, was Bura's subject. This definition of an architect's function and responsibilities was admirable and his account of the ethical codes in connection with architectural societies in the Colonies, America and France were very interesting. One did not like to see them, whether in existence or in draft, printed by the Society of Architects, as a basis for further consideration and discussion before formulating and systematizing one for Great Britain. The author was surely not right in stating that of the great professions, architecture was the only one not regulated by Act of Parliament. He did not think engineering or surveying were so regulated. Mr Bura's suggestion that the F.R.I.C.A. Code as presented in the *Kalendar* was not new and so should be made the first part of a new Code of Ethics and a confirmed Register, must have been a very serious consideration.

[illegible]

Parliament to favour legislation having for its object the protection of the community by bodies animated by such unimpeachable moral principles. The great value of statutory Registration would be, as Mr. Arthur Butler premised the bringing of the at present detached architect under a commonly-accepted code of architectural etiquette; but legislation directly or indirectly compelling any man to join a professional body would be a gross breach of the liberty of contract, and should be next to be suggested in applying for legislation the Act. As Benjamin Kidd says:—“Every party in the State—nobles, middle classes, and middlemen, has endeavoured in its time to identify the State with its own interests,

the quarry of Society with each of them in turn in the struggles of history has been that they have all endeavoured, when they held the State in their power, to exact from the community more than they were entitled to for services rendered in terms of social utility. To hold the community up for the most that it can extract from it. Let them consider it that they have each selfishness, but that they have each a nobleness had them open to future generations. As to Mr. Butler's suggested creation of a Central Board of Professional Practice, he should deprecate any additions to the existing organisations, such as the R.I.B.A. which, as the central, oldest, largest, and most influential body, should lead in all such matters. They needed to strengthen and re-organise such organisations—rather than to multiply them, but perhaps such a board might with great advantage be established by the R.I.B.A., by the strengthening of its practice committee and by including representatives of other recognised architectural bodies. Any court of appeal or advice, however, should be the R.I.B.A. Council, which would undoubtedly be in a better position than any new body to bring moral pressure to bear on private clients or public bodies, and to advise architects in cases where it is difficult for any detached architect to avoid having occasionally to appeal or to ignore the regulations or decisions of such a board of professional etiquette. He heartily endorsed the author's advice, that it was time to prepare such a code to be approved by the various societies, the breach of which would be generally understood to constitute a professional misconduct. He was glad to hear that already considerable progress was being taken by them in this suggestion. The R.I.B.A. had of late done great service for the entire profession in connection with competitions and other matters. On the vexed question of a scale of charges, he was averse to a rigid scale, at any rate before they had obtained a Registration Bill, but he believed that an optional schedule of regulated and approved fees, such as the standing of a representing a minimum charge, was essential. The present scale issued by the R.I.B.A. was a poor business, but he believed it was at the present time undergoing an exhaustive revision by a strong committee, and he hoped the result would be reasonable and elastic, and that it would, if passed, recognise the difference between an experienced and a novice, eminence and mediocrity. Although the R.I.B.A.'s past educational policy and the "new responsibilities" of architects went far to justify a better remuneration than that now current, he felt sure that until Registration had educated the public to realise how high their standard of compulsory education was, it would not be well prepared to listen to a proposal of a higher minimum schedule; but they were justified in hoping that a well-framed and carefully-graded scale of charges would, within a reasonable time, not only be reasonable on their part, but acceptable also to the public. Mr. McArthur Butler had made many useful suggestions in his able paper as to the points to be included in such a "Code of Ethics," which were worthy of careful consideration.

Mr. Arthur J. Martin (President of the Institute of Sanitary Engineers), said his opinion was the somewhat unconventional one that they should not lay too much stress

upon the interests of their respective professions. It was of no use for them to make rules, for instance, as to soliciting work and scales of fees if the client as well as the professional man did not loyally abide by them. If it were recognised that an architect was acting in the interests of the public as well as in his own, it would be found that the public would co-operate with them. Objection had been raised to a code of rules that they were difficult to enforce. There were, of course, very great difficulties, but in regard to the proper and professional conduct, he did not think that matters were so bad, because the value of rules of conduct lay not so much in the hard and fast line which they drew, so much as that it defined for the information of all concerned what should be the practice of the profession. For instance, with regard to a scale of fees, he did not think it was practicable to enforce a scale.

be the first to commence putting in a bill for extras, which should be taken into consideration when the fees were arranged. With regard to the architect's duty to the contractors, it was often found that the work of the latter was retarded by the architect supplying the details long after they were required. Mr. Butler suggested that it was impractical for an architect to accept any commission or substantial service from a contractor. He, the speaker, did not know whether "substantial service" was a legal term, but thought it would be better if the word "substantial" were left out altogether. The scale of charges should, he thought, be entirely omitted.

Mr. A. Lawrence Cox, F.S.I., A.M.I.C.E. (Member), said with reference to the remarks of the previous speaker, that he quite understood the position of the architect in regard to local authorities, when they refused to pass the plans unless a strip of land were given up. He had had some experience with local authorities, and he thought if plans were submitted that were strictly in accordance with the local by-laws, the local authority could not insist upon such a demand, but where the plans deviated in some way, and some sort of bargain were made between such authorities and the client, he did not think there was any real source of complaint. In many cases building owners and local authorities made concessions, and were more or less satisfied. In regard to advertising, some professional bodies raised no objection to it, while others did. He thought it made very little difference whether they, as a Society, objected or not, for architects would advertise in some form or another, although there were some extraordinary creatures who apparently did not care for publicity or remuneration of any sort. He saw no reason why advertising should not be permitted, so long as it was indulged in moderately.

The Chairman, Mr. Percy B. Tubbs, F.R.I.B.A. (Vice-president), then summed up the discussion, and said he personally hoped that a Code of Ethics would be adopted, and that the Council of the Society would appoint a Committee to inquire into the matter. The discussion that evening would be of the greatest possible assistance to them. There would, of course, be some difficulty in enforcing a code, and he would very much like to see a Board of Professional Control as suggested by Mr. Butler. He thought it quite possible that if it were properly constituted it might ultimately develop into the Registration authority if they were so fortunate as to get the Bill through Parliament. With regard to the charging of a commission, he quite agreed that it was absolutely wrong in principle, and ought to be altered at the earliest possible moment. With regard to illicit commissions being no longer necessary, owing to the recent Act of Parliament, he, the speaker, thought it had made matters worse if anything, for as matters were originally only one man was considered to be in a position to give and he was the receiver of the commission; but under the Act both giver and receiver were condemned, and so as the lips of both were hermetically sealed, there was less likelihood than ever of such things becoming known.

A vote of thanks to Mr. Butler was then put to the meeting, and carried with acclamation.

Mr. C. McArthur Butler said he would reserve his reply for the proceedings.

Mr. G. A. Middleton, F.R.I.B.A. (communicated), says the author seems to have said everything almost, and to have taken an attitude that is most difficult to attack. Perhaps it may be open to debate whether a written code is so good as one which is understood as leading to possible better decisions when circumstances might warrant a lenient view being taken. At the same time, the value of strict discipline is great, and machinery for its universal enforcement, with safeguards for even-handed justice, are much needed. His impression is that the inclusion of some representatives of the public on the Board of Control might be essential to ensure this in all cases. He has also been suggested that it might be made of forbidding a custom, by no means

unknown, of giving commissions for the introduction of work and for information of work likely to come, to officials, perhaps, of public bodies, enabling members of those bodies to be "got at."

Mr. A. B. Hayward, Member (communicated), thinks as the ownership of drawings is one of the most important things to be remedied at the present time, and that it is most unjust that the client should be considered the owner of them in the eyes of the Law, they being merely the instruments employed by the architect to produce the building ordered by the client, and as such should be as much the property of the architect as his fee-square or his five foot rod. As to the scale of fees as sanctioned as present, it appears to him to work fairly well on the whole, except when it comes to the question of paying for applications to County Council, Local Councils, drawings for District Surveyor for certificate, or, in the case of public buildings, for his use. The architect must be paid for these, yet the number of them required has increased considerably of late years, and the scale as issued by the R.I.B.A. hardly makes it sufficiently clear that fees for such work are over and above the 5 per cent., and sufficient emphasis is not made in the scale of the fact that these charges in some cases amount to a considerable sum, and clients are not clearly led to understand that this work entails much extra labour and expense to the architect. The architect has always obtained payment for them, but a client might sometimes think that he is being mulcted pretty heavily, and consider an architect an expensive luxury, when he finds that he has to pay for so many additional sets of drawings for authorities whose *raison d'être* may seem to him merely to be in their turn to supervise the architect. With reference to advertising, he thinks the modern tendency originated by the Garden City Movement Exhibitions, and the *Daily Mail* Cheap House Brand of Exhibitions, is a mistake, and does harm to the profession. Illustrations of one's work in journals, books, papers, collections of designs of houses, etc., etc., seems to him to be quite fair and legitimate, and if considered advertising, is legitimate advertising.

Mr. H. Freyberg, F.S.I., Member (communicated), considers that if in drafting any Code of Ethics for professional conduct, all architectural, surveying, and engineering institutions could first agree to certain general principles applicable to all members of those institutions, it would not only bind them, but also could not fail to influence unattached people and the general public.

Mr. H. Guichard Todd, F.S.A. (Scott.), Member (communicated), says the practice of Ethics cannot be codified in relation to architecture any more than they can be codified to the practice of art, to which it is sister in kind and temperament. To attempt to do so is to degrade the profession to mere commercialism, which, of course, being on a lower plane, demands the protection of rules for individual safeguard against the misuse of antagonistic forces.

FAULTS IN THE THEORY OF FLEXURE.*

By HENRY S. PRICHARD, M.A.M., M.S.C.E. As the ordinary flexure is almost universally used, not only in proportioning simple beams, but in the solution of all questions involving the elastic deformation of structural members, the nature and influence of its faults—by reason of which it is not rigidly accurate, but only approximate—should be generally understood.

It is generally recognised that the ideal material and conditions assumed are not wholly achieved, and it is shown in some elaborate treatises on the theory of elasticity, but not ordinarily realised, that, even if it were possible to have ideal material and conditions, the theory would still be faulty. For instance, it is shown by Professor C. Bach that a cross-section originally plane does not remain plane during flexure, as is ordinarily assumed, but is forced into a reversed curve

somewhat like a long *f*, only much less pronounced in ordinary materials; and Professor A. E. H. Love states that the ordinary equation for shear distribution gives an average intensity across the breadth of the section, and that actually the distribution is not uniform, as is tacitly assumed in nearly all textbooks.

It is not necessary to master profound and highly complicated treatises on elasticity to understand the faults in the theory of

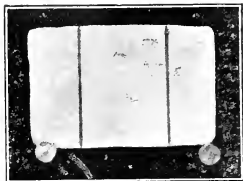


FIG. 1.—Rubber Beam Not Loaded.

flexure; while, for the purpose of allowing for these faults after they are understood, judgment, assisted by approximation and tests, is of more practical use to engineers than the much-involved expressions of mathematical investigators. For convenience, the further discussion of the subject is divided into sections.

SECTION I.—DEFORMATION OF CROSS-SECTIONS.

The fact that a cross-section originally plane is forced by flexure into a reversed curve somewhat like a long *f* can be readily shown by marking the position of a cross-section on the sides of a free, good, soft rubber eraser, such as is used by draughtsmen, and then bending it by the thumbs and forefingers, or by loading it as illustrated, Fig. 1 being the unloaded and Fig. 2 the loaded beam.

The curve developed in an originally plane cross-section by loading the beam can be explained by considering the distortion produced by shear. To simplify the analysis, consider a vertical cross-section of a horizontal beam at a point where there is no bending moment, and where consequently the strains are due entirely to shear.

According to the theory of flexure, the shear will be greatest at the neutral axis, and gradually decrease until it becomes zero at the extreme top and bottom fibres. The theory is correct in this regard, although faulty with reference to the law by which the shear diminishes. The shear acting on the horizontal and cross-sectional faces of an originally square increment will cause one diagonal of the increment to lengthen and the other to shorten, as in the various increments shown in Fig. 1, A, and these distortions will be less for each succeeding increment from the neutral axis towards the top and bottom fibres. Consequently, the originally vertical transverse faces of these increments will not remain in the same transverse plane, but will form a curve, as in Fig. 1, A.

The curves of the successive cross-sections of a beam towards the point of no-shear will gradually approach a straight line, and reverse in direction after the point of no-shear is passed. The intensity of the horizontal stresses in successive horizontal fibres will vary in accordance with the changes in the lengths of those fibres; but these changes evidently will not be in direct proportion to the distances of the fibres from the neutral axis, as indicated by the ordinary theory of flexure. Hence the ordinary equations for determining the extreme fibre stresses, in which the moment of inertia is a factor in the amount of the stress, are not strictly accurate, because this use of the moment of inertia is based on the proposition that the intensity of the stress in any fibre varies in direct proportion to its distance from the neutral axis. In these circum-

* To be read before the American Society of Engineers, May 1.

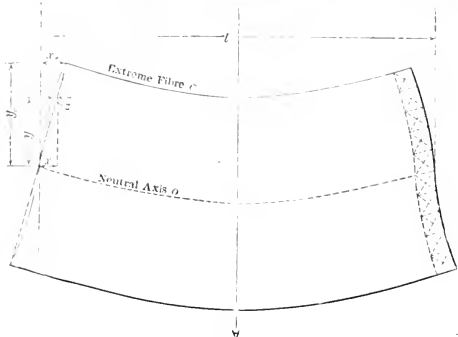


FIG. 1A.

stances, the questions arise, "Can the theory be corrected in this regard?" and "To what does the error involved amount in practice?"

An exact general analysis, if developed, would be so complicated, and its application would necessitate so much labour and consume so much time, that it would be wholly impracticable to put it to any general use. It is practicable, however, to determine, in cases selected as criteria, close approximations to the corrections which should be made to allow for the error involved in assuming that cross sections originally plane remain plane during flexure.

For horizontal beams of constant and

and end of the beam; \$a'\$ = the area of any horizontal layer of the cross section; \$M\$ = the bending moment at the centre of the beam corresponding with \$f\$, as determined by the ordinary theory of flexure; \$M'\$ = the true bending moment corresponding with \$f\$; \$l\$ = the length of the beam.

By the ordinary theory of flexure, the intensity of the stress in any fibre is—

$$f x \quad x = f y \quad y$$

For any given \$f\$, \$M\$ is constant for all values of \$l\$, and

$$M = \sum \left(f a' x a = f a' y a \right) = \frac{f l}{6} \dots (1)$$

By a refined method—

$$M' = \sum \left(f a' x a = f a' y a \right) = \frac{f l}{6} \dots (2)$$

The mean intensity of stress in the extreme fibre between the centre and the end of the beam equals \$2f/3\$.

$$x_e = \frac{f l}{3 E} \dots (3)$$

From Equations 1 and 3, Equation 2 becomes

$$M' = f l \quad y_e = 3 E \quad a' \quad y \quad \dots (4)$$

As a study for a contemplated paper on plate-girder design, the writer made a comparison, which is given in Table I, between the results of Equations 1 and 3, for the steel beams shown in Figs. 2A, 2B, 2C, 2D, and 2E. In computing the numerical value of

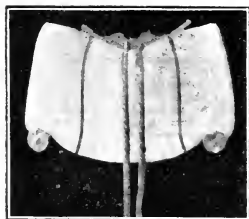


FIG. 2. Rubber Beam Loaded.

the cross sections, uniformly loaded within the elastic limit, and with ends simply supported, the cross sections at the centre will remain vertical during flexure (as is evident from the symmetry of the condition as regards the centre), the maximum intensity of stress in each horizontal fibre or layer will occur at the centre cross-section, and the change in the lengths of the various fibres will be proportional to the maximum intensity of stress there.

The change caused by flexure, in the length of each fibre \$l\$ in the end to the centre of the beam is also the amount by which the end of each fibre moved from its original free position in the vertical plane passing through the end of the neutral axis, as shown in Fig. 1.

\$f\$ = the intensity of the stress in the extreme fibre; \$y\$ = the distance of any fibre from the neutral axis; \$z\$ = the distance of the extreme fibre from the neutral axis; \$s\$ = the shortening of any fibre between the centre and end of the beam, indicated by the ordinary theory of flexure for a given \$f\$; \$s'\$ = the shortening of the extreme fibre between the centre and end for a given \$f\$; \$s''\$ = the difference between \$s\$ and the true shortening of any fibre between the centre

the true bending moment, the values of \$z\$ were determined for the distribution of shear indicated by the ordinary theory of flexure, which distribution this applied tends towards a slight underestimate of the value of the bending moment. The lateral contraction in the web accompanying and at right angles to the extension from tension was taken as one third of the extension, and the lateral extension accompanying and at right

angles to the contraction from compression was taken as one-third of the contraction, which ratio is, if anything, somewhat greater than the mean of experiments; and the summation in the second member of Equation 4 was rendered simple and closely approximate by the homely device of dividing the beam into a considerable number of finite elements, and considering the mean shear in each as the average of the extremes, which tends towards a slight overestimate of the value of the bending moment. The next result of these approximations is to overstate slightly the error involved in the assumption that originally plane cross sections remain plane during flexure. In determining the maximum length for which shear is the governing consideration, the greatest permissible intensity in shear was taken as three-fourths of that in tension.

TABLE I.—Giving, for the beams shown in Figs. 2A, 2B, 2C, 2D, and 2E, the percentages by which the indicated capacity for uniformly distributed load, when computed by the ordinary theory of flexure, using the extreme fibre stress as the criterion, should be reduced to allow for the error involved in assuming that originally plane cross sections remain plane during flexure.

Beam in figure.	Ratio of web area to total area.	Coefficient.	Percentages by which Indicated Capacity should be Reduced.	For length—depth, as below.	For length—depth equals 10.
(1)	(2)	(3)	(4)	(5)	(6)
2A	28 to 100	219,000	$332 \div 42 = 8.0$	2.0	1.24
2B	36 to 100	153,700	$234 \div 41 = 5.7$	2.8	0.91
2C	54 to 100	122,700	$181 \div 41 = 4.3$	6.0	0.73
2D	71 to 100	94,000	$88 \div 41 = 2.1$	11.0	0.56
2E	100 to 100	81,000	$40 \div 40 = 1.0$	37.0	0.51

For girders 2A, 2B, 2C, and 2D, shear governs when length is less than given in column 6.

When the lengths of the above girders are more than twice their depths, the approximate percentage of reduction can be obtained by dividing the coefficients given in column 3 by the squares of their lengths in inches.

In obtaining the ratios given in column 2, the web was taken the full depth of the beam.

The beams from which Table I was computed have thin webs; but the webs can be increased without affecting the results, provided corresponding changes are made in the flanges. A consideration of Table I shows that for very short beams the erroneous assumption that originally plane cross sections remain plane during flexure leads to a considerable over estimate of their capacity to resist bending stresses, while for long beams and those of moderate length the error is of little practical importance.

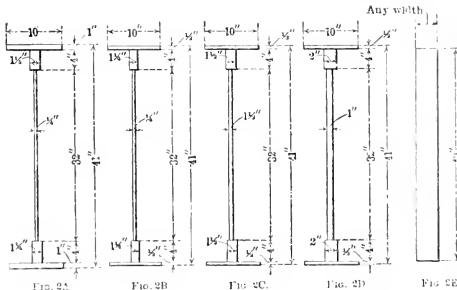


FIG. 2A.

FIG. 2B.

FIG. 2C.

FIG. 2D.

FIG. 2E.

SECTION II.—MANNER OF LOADING.

Beams frequently rest on supports, and occasionally are suspended; loads are applied sometimes at the top and sometimes at the bottom; and, in the case of I-shaped beams, the loads and reactions are sometimes distributed as nearly as practicable over the entire depth of the web.

A fault, and, as far as concerns I-shaped beams with thin webs, the most serious fault

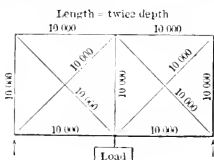


FIG. 3A.

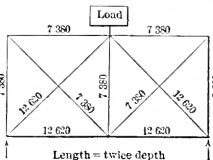


FIG. 3B.

—in the theory of flexure is that it does not take into account the manner in which beams are loaded and supported, but is developed on the tacit assumption that just the right proportion of each load and reaction needed to produce the theoretical changes in shear reach each horizontal layer of the beam without producing any stress in the layers above or below. When this tacit assumption is not realised, the distribution of shear and horizontal stress will not be the same as indicated by theory, and vertical tension or compression, as the case may be, will be produced in the web.

A double lattice girder with a length of twice its depth, shown in Figs. 3A and 3B, is chosen to illustrate by analogy the principles involved, because it is a simple case in which the stresses can be readily determined from the laws of elasticity. In such a lattice girder the changes in the stress in the diagonals occur at the top and bottom, and if the loads and reactions are applied in suitable proportions at these points there will be no strain in the vertical members—in fact, no need for vertical members; but, if otherwise applied, vertical members will be strained.

In the case illustrated in Fig. 3A the loads and reactions are applied centrally at the bottom, and the vertical members are therefore strained. The girder is designed so that the stresses in each member have an intensity of 10,000 lb. per square inch. If now the position of the load is changed from the bottom to the top, as in Fig. 3B, more members will be strained in one system than in the other; therefore, it will take less load to produce the common deflection in one system than in the other, and the stresses will be less in one than in the other. In fact, the stresses will be increased in the members of one system, and decreased in those of the other, by 26.2 per cent. By analogy, it is proper to infer that similar differences occur in the distribution of shear and horizontal stresses in beams, and should be considered, when the beams are very short, in gauging their capacity. The percentage of difference rapidly decreases with increase in length, and is inconsiderable in beams of ordinary lengths.

It is usual and necessary in designing built Σ beams, known as plate girders, to provide for the vertical compression in the webs, from heavy concentrated loads and reactions, by reinforcing the webs with vertical stiffeners between the flanges. As is well known, it is not customary to do this with rolled Σ beams. The only other way of avoiding the overstraining of the webs in such cases is to use Σ beams in which the webs and flanges are proportioned so that there is sufficient metal in the webs to resist not only the shear indicated by the ordinary theory of flexure, but, in addition, the tendency of loads applied at the top and reactions applied at the bottom to crush and buckle them.

Architects and engineers should give earnest attention to this phase of the subject. The old and tried shapes, which for many years have been standard for Σ beams, have fairly thick webs and well and amply proportioned connections between the webs and flanges; but new shapes, made possible by new methods of rolling, are now rolled which have a greater proportion of metal in the flanges, and for which greater strength in proportion to their weight has been computed by the ordinary theory of flexure, and

unreservedly claimed, but which have webs in which resistance to crushing and buckling under concentrated loads and reactions has been considerably reduced as compared with the resistance of the webs in the old shapes.

SECTION III.—DISTRIBUTION OF SHEAR.

The ordinary equation for distribution of shear, criticised by Professor Love, is as follows:—

Let Q = the total shear on any cross-section of a beam of constant cross-section; q = the intensity of the shear at any point in the cross-section (see text below and conclusion at end of this section); m = the static moment of that portion of the cross-section outside of the horizontal line, in which intensity of the shear is obtained, taken about the neutral axis; b = breadth of the cross-section at the point where the intensity of the shear is obtained; I = the moment of inertia of the entire cross-section.

$$q = \frac{Qm}{Ib}$$

This equation is usually given as applicable to solid sections of beams of all possible shapes. Except for the influence of the faults discussed in Sections I. and II., it really gives, as pointed out by Professor Love, the mean or average shear across the breadth of the cross-section. The tacit assumption, in most of the textbooks, that the intensity



FIG. 4A.



FIG. 4B.



FIG. 4C.

of the shear is uniform across the breadth of the cross-section, can be analysed.

If a number of very thin, independent, equal rectangular beams are placed side by side, as in Fig. 4A, and then loaded, the portion of each in compression will be laterally expanded, and the portion of each in tension laterally contracted, as in Fig. 4B; and if the loads on each are suitably varied by increasing them from the centre towards the outside beams, so as to produce the necessary deflections, and if the sides of the beams are brought into contact, they will collectively appear as one with a cross-section bounded on the top and bottom by curved lines, and on the sides by lines inclined towards each other, as in Fig. 4C. The elemental beams, on account of their extreme thinness, have no lateral stiffness, and can be brought into contact by lateral forces so small that the stresses they produce are negligible.

If, without disturbing the position or shape of the elemental beams, their sides are now joined so that the hitherto separate beams form a single homogeneous beam, of which they are equal vertical layers, there will be no stress or shear on their vertical sides, but each layer will be in the same condition of stress and shear as when an independent beam; and the shear on the combined beam will not be uniform across the cross-section, but will increase from the centre outward.

If, after joining the original elements, the load on the intermediate vertical layers is increased to equal the load on the outside layers, each intermediate layer will deflect,

but, in so doing, will transmit part of its load to the adjacent layer toward the outside. The outside layers, therefore, will continue to carry more than a pro rata share of the total load, and therefore have more than a mean intensity of shear.

For very broad, very shallow rectangular beams, such as could be formed by a wide, thin plate, the difference in distribution of shear across the breadth of the cross-section is considerable, but, for ordinary rectangular cross-sections, it is evident that the lateral deformation affects the deflection of the different vertical layers so little, in comparison with the total deflection, that there will be hardly any appreciable variation in the shear across the breadth of the cross-section. These conclusions agree with those of St. Venant, who was the first to make a satisfactory mathematical investigation, and his conclusions were endorsed by Sir William Thompson (Lord Kelvin).

The influence of lateral deformation on deflection, and, consequently, on distribution of shear, will similarly be of little consequence in solid beams with round, oblong, diamond, or other symmetrical cross-sections, which are not unduly broad and gradually reduce in breadth from the neutral axis toward the extreme fibres, as in Figs. 5A, 5B, 5C, and 5D.

If the distribution of shear in such a beam was analogous to the distribution in a large number of very thin independent vertical beams having the same deflection, and, in the aggregate, the same cross-section as the beam under consideration, the load carried by, and, consequently, the shear on any cross-section of, any one of the vertical layers, as compared with the entire beam, would, unless the beam was very short, be closely proportional to their respective moments of inertia, and the mean intensity of shear would be closely proportional to their moments of inertia divided by their areas; that is, to the square of their radii of gyration. (This proposition is based on the ordinary equations for deflection, with the qualifying word "closely" added on account of the faults

discussed in Sections I. and II., and of the omission from the ordinary equations of the influence of shear on deflection.) Further, cross-sections of the vertical layers, being rectangular, would, according to Equation 5, have a maximum intensity of shear exceeding the mean intensity in the proportion of 3 to 2. Applying these propositions to the centre vertical layer:

Let n = the radius of gyration of the entire cross-section, and h = the depth of the centre vertical layer.

The square of the radius of gyration of the centre vertical layer is $\frac{1}{12} h^3$.

The ratio of the mean intensity of shear in the centre vertical layer to the mean intensity on the entire cross-section is as $\frac{1}{12} h^3$ is to n^2 .

And the ratio of maximum intensity of shear to the mean intensity of shear on the entire cross-section is as h is to n .

Table 2 is a comparison of ratios of maximum to mean intensity for various cross-sections, as derived by applying Equations 5 and 7, respectively.

TABLE 2.

Cross Section.	By ordinary Equation 5.	By Equation 7.
Rectangular	4 to 2	3 to 2
Round	4 to 3	2 to 1
Square Diamond	1 to 1	3 to 1

The assumption on which Equation 7 is based, that the vertical layers act like independent beams, having a common deflection, is not true, however, as the deflection

tion from shear, illustrated in Fig. 1, in adjacent independent beams would not match, but would be greatest toward the centre. In the united section each successive vertical layer, from the centre toward the outside, in distorting would transmit soiled to its shear to the adjacent section. Hence the ratio of maximum to mean intensity of shear would be intermediary between the values indicated by Equations 5 and 7.

For the square diamond there is another method of determining the maximum shear, the results of which are suggestive. If the π and is resolved into components parallel to the diagonals, to the sides of the beam, and τ the intensity of the shear from each component are combined, the ratio of maximum to mean thus obtained is 3 to 2, which is the same as for rectangular cross sections, and probably not far off for any of the cross-sections in this class.

The distribution of shear in beams with solid, I, T, angle, Z, channel, and diamond cross sections is of academic rather than of practical interest, as shear is not a critical matter in such beams unless they are very short, in which case, owing to the faults discussed in Sections I and II, the ordinary theory of flexure is too faulty to use, and experiments should be the criteria.

In giving the ordinary equation, Equation 20, textbooks should state that q is the mean intensity of shear across the breadth of the cross-section at any point, and that, for rectangular cross-sections and webs of I and T beams, the intensity of the shear is nearly uniform across their breadth, but that it varies for other forms of cross-sections.

(To be continued.)

TOWN PLANNING CONFERENCE.

A Conference on Town Planning, convened by the National Advisory Town Planning Committee, was held on Wednesday and Thursday (yesterday) at the Westminster Palace Hotel, under the presidency of Alderman W. Thompson, of Richmond, Surrey. The proceedings were conducted by means of questions and answers, the prepared papers being taken as read, and no long speeches being made. The papers submitted were contributed by Mr. H. R. Aldridge, on "The First Stage of a Town Planning Scheme"; by Mr. Harold Shawcross, on "The Second stage of a Town Planning Scheme"; and Mr. George L. Pepler, on "The Planning of Roads in Town Planning schemes."

The question was raised whether existing parks and recreation grounds should be included in town planning schemes. At Sutton Coldfield a 21-acre park was excluded, but a Carshalton recreation ground was included, on the ground that it might at a future date be required for workmen's dwellings or some other purpose. In reply to a question whether Crown lands should be included, Mr. Ward, of Portsmouth, stated that the War Office absolutely refused to allow an area of their land to be scheduled in the town plan, though it was being sold and developed as a building estate. The chairman said this was a case of which public notice should be taken by questions in Parliament. There was no reason why a Government department should be exempted any more than a municipality.

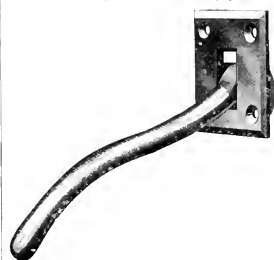
The question of the relaxation of by-laws in order to allow residential areas to be developed on garden city lines produced an animated discussion. Several representatives declared that councils had no power to modify their by-laws; but it was stated that this was done at Southgate and Rushlip, and Mr. Morton, of Rugby, said that in their case the Local Government in Board sanctioned the exemption of a defined area from the operation of certain of the model by-laws. The Chairman also stated that the Board had approved of a by-law which allowed modified roads on Mr. Rockett's garden at Caze at Hall. Mr. Rexy Nadin, of Sutton Coldfield, and Mr. H. R. Aldridge, urged that it would be a fatal policy to rely on road works and the conditions of road construction by by-law. Mr. Raymond Unwin,

architect of the Hampstead Garden Suburb, recommended roads for residential parts of a town planning area with a width of 16ft. Some of their 26ft. roads at Hampstead cost 13d. per foot for maintenance, whereas 40ft. roads cost at least 6d.

On the motion of Mr. Seward James, of Birmingham, seconded by Mr. Abbott, of Ruislip, a resolution was unanimously passed requesting the Local Government Board to consider the advisability of dispensing with the service of personal notices on landowners affected by town planning schemes beyond Article I. of the Regulations, and of requiring all subsequent notices to be by public advertisement only.

THE PATENT ASYLUM "SAFETY" HOOK

The provision of coat and wardrobe hooks has been a source of anxiety in asylums for the insane, owing to their affording patients



Hat Hook.—Pulled Down to Allow Cord to Slip Off.

of suicidal tendencies easy facilities for hanging themselves. It is a common practice to screw the hooks on with short and slight



Hat Hook.—In Ordinary Position for Use.

screws which tear out of the rails when a strain is put upon them.

The patent asylum "safety" hook has been devised by Mr. Walter Allott, of 8, Swinburne grove, Withington, Manchester, to



Wardrobe Hook.

give permanent convenience for hanging clothes, hats, etc., and prevent the risk of suicide. This is effected by a strong spring attached to the hook, which will support the weight of ordinary clothing, but would give

way under the weight of the body of a patient, and allow the cord or other means of suspension to slip off the hook. A guard is attached to prevent the hook being wedged up to stop the working of the spring.

The accompanying illustrations show the smaller hook for wardrobes and hanging cupboards (which can be made of varying sizes to suit any requirements), and the large hook for hats, one illustration of which shows the hook in position for use, and the other, when pulled down, affording no hold for a cord. The same principle has been applied to the brackets supporting rods for window-curtains, portieres, etc., which can be supplied with wood backing ready for fixing.

The hooks are made by Colledge and Bridgen, of the Mulfand Lock Works, Wolverhampton.

Building Intelligence.

NOTTINGHAM.—An addition is being made to the Mother Church of Nottingham. This is an aisle to the chancel, which will provide both a side chapel and an organ-chamber. The present chancel is unworthy architecturally of the nave, and when it was proposed in 1881 that St. Mary's should be the Cathedral of the new Diocese of Southwell it was suggested that the chancel should be rebuilt. The present work was first designed by the late Mr. Hodgson Fowler, but on his death Mr. Temple Moore was called in, and he adopted in the main (though with some minor modifications) Mr. Hodgson Fowler's plans. The foundation-stone of the new aisle is to be laid to-day.

STONE.—The new St. Michael's Hall, in Lichfield-road, Stone, was opened on Thursday week. The contractors are Messrs. Tomkinson and Birtley, of Longton, and the architect Mr. J. H. Redman, of Stone. The building, which is to be used for parochial purposes, consists of an entrance hall; parish hall, 42ft. by 25ft., with ante-room and cloakroom adjoining; a reading-room, 25ft. by 19ft.; and a billiard-room, with accommodation for two tables. Underneath is a cellar containing the heating apparatus and cooking appliances. The walls are of brick, with pebble-dash outside. The total cost will be about £1,000.

TANFIELD LEA.—The foundation-stone ceremony in connection with the new Primitive Methodist Church and Sunday-school, Tanfield Lea, Co. Durham, took place on Saturday. The buildings face the main road between Stanley and Tantobie, and the church is to seat 300 and the school 350. The design is Gothic, and the front of the church will have a large tracery window, glazed with leaded lights. The total cost will be over £2,200, and Messrs. Cook Bros., Blyth, are the contractors; and the architect is Mr. J. W. P. Phillipson, M.S.A., Grainger-street, Newcastle.

Among the members of council elected at the annual meeting of the Society of Antiquaries on St. George's Day were Mr. E. S. Prior, F.R.I.B.A., and Mr. H. Thackeray Turner, F.R.I.B.A.

The following pictures have lately been added to the National Gallery: "Portrait of a Man," by Jan Lievens (1607-1674), No. 2,864, hung in Room XIII.; and "Plucking the Turkey," by Henry Walton (1746-1813), No. 2,870, hung in Room XXI. The following picture has been lent by Mrs. Drew to the Tate Gallery at Millbank, and is placed in Room XX.:—"Portrait of Dorothy Drew" (now Mrs. Woodbine Parish), by Sir Edward C. Burne-Jones.

The Lancashire and Cheshire Centre of the Roads Improvement Association has devoted considerable attention to the scheme laid before it for the construction of a new road from Liverpool to Preston, via Southport. It is proposed that the new road shall begin at Kirkdale, and pass through Litherland, Buckley, Hill, Thornton, Ince Blundell, and Moss Bridge to Southport. From Southport, it is suggested, the new road should travel through Crossens Bank, Hesketh Bank, Hutton, and Penwortham to Preston. Such a road would shorten the distance between Southport and Preston by five miles.

Our Illustrations.

THE CHURCH OF ST. LAURENT, LE PUY.

The Church of St. Laurent, once attached to the Monastery of the Dominicans, stands in the lower part of the old town of Le Puy, not far from the extraordinary pilgrimage church of St. Michael, which is built on the top of a fragment of rock several hundred feet high. The exterior of St. Laurent is singularly unattractive, but internally it is very impressive, and from an artistic point of view

may be said to compare favourably with the cathedral, which chills the artist's eye by its cold severity. The church dates chiefly from the 11th century, and contains the tomb of Du Guesclin with a very interesting statue of the hero. Le Puy itself is chiefly interesting to the architect by reason of its churches. The town, except for its remarkable position upon the side of a steep hill in the middle of an amphitheatre of mountains, has not much of interest in its domestic architecture; but other places near it, Polignac and Espaly, for instance, are extremely picturesque, and the sketcher will find much to occupy him in and near them.

Our illustration is from a beautiful water-colour drawing by Mr. A. Wallace Rimington, A.R.E., R.B.A.

THE WEIR COTTAGE HOSPITAL.

SELECTED DESIGN.

This building is to be erected on the site of Nos. 15 and 17, Grove-road, Clapham Park, S.W., and will provide accommodation for thirty in-patients and for a daily attendance of fifty out-patients, with a dispensary, operating-room, X-ray department, etc. The main front building to Grove road, will be of two stories, providing accommodation for the resident staff on the first floor, over the administrative and out-patients departments. The remainder of the building will be of one story and arranged for future extension by the addition of another story to the ward blocks. The buildings will be constructed of "fireproof" materials throughout, faced with red pressed bricks and Portland-stone dressings. The architect is Mr. R. J. Thomson, F.R.I.B.A., of 49, Hill road, Wimbledon, whose design was selected in competition.

"HORSLEYDOWN," KINGSDOWN, NEAR WALMER, KENT.

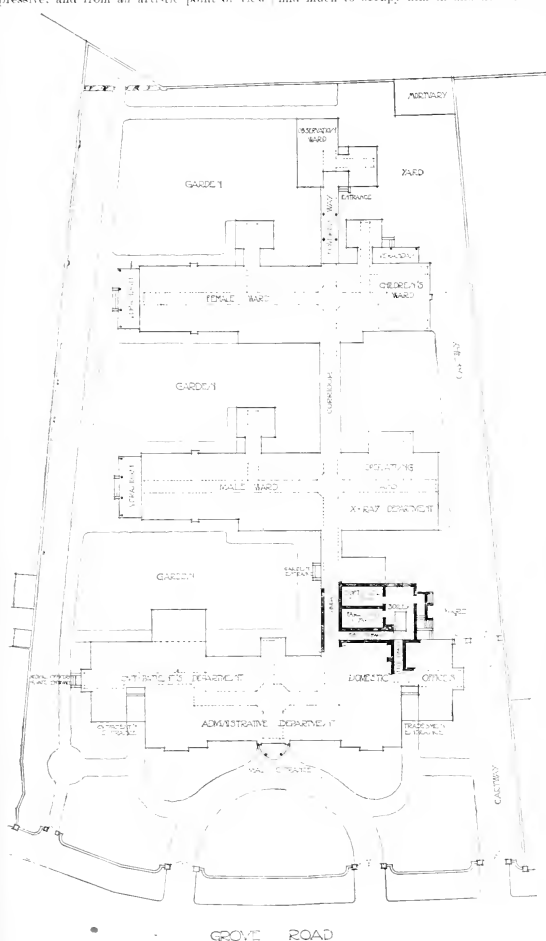
With a considerable fall from the seashore frontage, the site on which this seaside house has been recently built consists entirely of shingle, the sunk garden to the rear being made up with a good depth of chalk covered with 2ft. of loam. This fall in the land necessitated the back part of the building being made a floor lower than the front towards the sea. All the rooms above the upper ground line have a sea view. With this intention the façade is practically all windows, and to make this stipulated arrangement, keeping in mind architectural good effect and likewise to gain additional convenience, the lay-out is diversified so that a verandah occupies the centre of the ground-floor stage, while balconies occur right and left on the first-floor level. A sea-scape room, with an open balcony to it, is provided in the gabled roof on the second floor. There are nine bedrooms, besides the two reception-rooms, the larger of the pair being the "family room" which is furnished in old oak. A lift by Waygood for service connects the kitchen on the lower ground level with all the floors. Cliff's salt-glazed bricks are used for the facings towards the sea, and withstand the roughest weather. The external woodwork to the balconies, etc., is in teak. Iron casements are used, with quarry glazing of white glass and iron lead cames. The roofs and upper walls are tiled. The staircase is of oak, and it is well screened from the front entrance. The builder was Mr. Alfred W. Thompson, of Lower Walmer. This plate is reproduced from a drawing which forms one of the new subjects in the second edition of "Modern Cottage Architecture," which Mr. B. T. Eastford is forthwith publishing, under the editorship of the architect of this seaside house, Mr. Maurice B. Adams, F.R.I.B.A. The volume is largely illustrated from photographs, showing recent work done by leading architects, and we may give some further examples from its pages, for they are thoroughly representative, with plenty of plans, and other useful details.

Mr. P. J. Bryan, of Edinburgh, has been appointed surveyor and sanitary inspector to the Innerleithen Town Council.

A new school for the Cockpen School Board, erected in Polton-street, Bonnyrigg, from plans by Mr. James Gray, architect, Bonnyrigg, was opened last Friday. The cost was £3,500.

The foundation-stone of a United Methodist chapel was laid at Preston, near Painsion, on Saturday. The permanent building replaces an iron structure on the same site, the architect being Mr. Matthews, of Painsion.

Mr. John Manchester Saller, who retired in 1884 from the city engineer's department of the Liverpool Corporation after forty-eight years' service, died on Friday at his residence, "Tyhurst," Maghull, in his 90th year. He was employed on the laying out of Sefton Park, the sewerage of Wavertree district, and other important works in the city.



BLOCK AND BASEMENT PLAN

THE WEIR COTTAGE HOSPITAL, BALHAM.
Mr. R. J. Thomson, F.R.I.B.A., Architect.



"SHAKESPEARE'S ENGLAND" EXHIBITION, KENSINGTON.—BUILDINGS ADAPTED FROM OLD EXAMPLES: LEDBURY MARKET HALL. By Mr. E. L. LUTYENS, F.R.I.B.A., Architect.

"SHAKESPEARE'S ENGLAND" EXHIBITION, KENSINGTON.

Mr. E. L. Lutyens, F.R.I.B.A., is the architect engaged in superintending and designing the historic grouping of old typical buildings illustrative of the period of Shakespeare for this forthcoming exhibition, and, laid out as the scheme will be with due regard to the Old English ideas of street formation and fittingly contrived also to meet the exigencies of a modern display in a series of modern shops to be visited by thousands of people by night and by day. The collection will include reduced copies of some of the larger mansion houses of Elizabeth's time, and every care is being observed to render these replicas well worthy of the occasion. We give two sketches, which serve to indicate what is being erected. The examples chosen are taken from the Stables, Ashley St. Lodge, Warwick, and Dexter, Northbourne, Kent. The third subject is the famous timber market hall at Ledbury, Herefordshire.

Next the entrance in Warwick Road in Elizabethan tower with an old Norman towered church will form the attraction. The representations of the Porch House, Putney; Trinity College fountain, Coventry; almshouses, Apethorpe; Holborn old houses; Exeter Guildhall; Salisbury Cross; Guilden Old Hall, Huddersfield; St. Cross, Dorset; Wyke House, Dexter Hall, and an adaptation of Shakespeare's House at Stratford

on Avon. The lake is to more or less represent Plymouth Harbour, and enclosed for inspection there is "The Revenge," Drake's famous galleon, manned by old naval reserve men in the dress of the period. It was Mr. Lutyens's idea, we understand, to have the ship moving up and down, motioned by the waves, but this part of the programme was abandoned, for the leverage would be very considerable, owing, for one thing, to the great height of the masts and rigging. The old hostelry under the sign of the Hare and Talbot is to be provided, and roast pig is to be served to the public.

The City of London, which, for years past, has paid land-tax for the houses which existed on Old London Bridge, has decided to redeem the same. The amount is about £375 per annum, and the City will be able to secure redemption by payment of a lump sum of £11,000 or so.

Twelve additional cottages are in course of erection at the Middlesex County Asylum, Napsbury, St. Albans, for the county council of Middlesex, from plans by Mr. H. T. Wakelam, M.Inst.C.E., M.S.A., the county architect. The cost works out at £210 per cottage. Mr. Pukin, of St. Albans, is the builder.

According to a writer in the *Florists' Exchange*, "lead wool," which is metallic lead cut in fine shreds, about the thickness of ordinary wire, is an excellent material to use for stopping leaks in pipes. The lead wool is caulked in by means of an ordinary chisel, and may be employed when the water is on or off.

THE CONSTRUCTION OF LOMBARD AND GOTHIC VAULTS.*

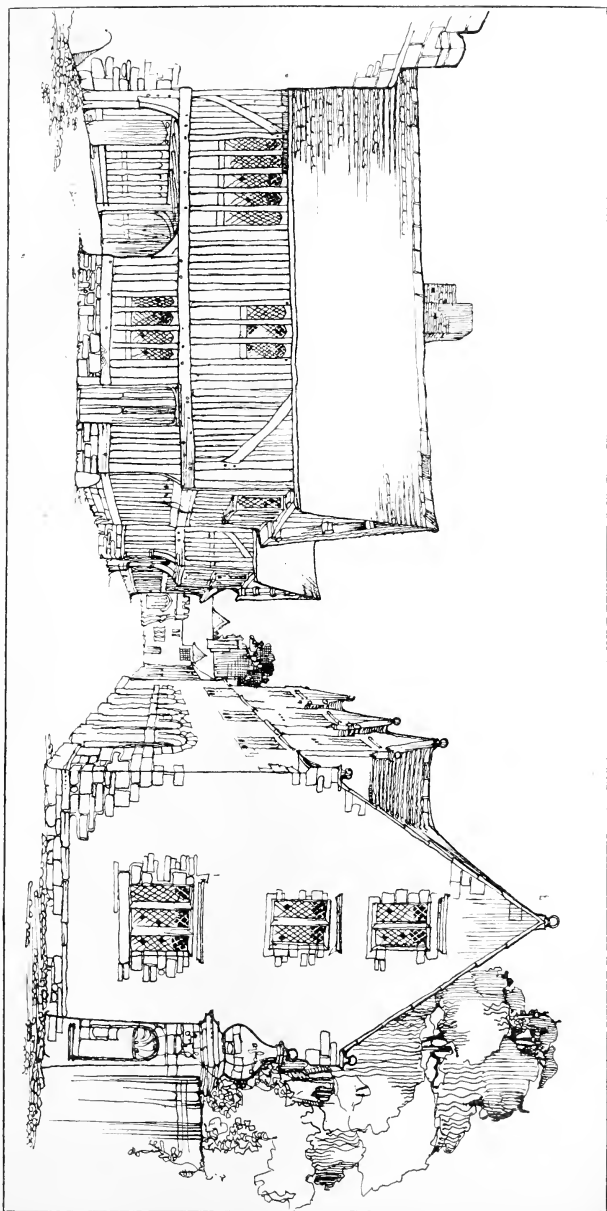
This work, which appears to have been published in America in November last, has now reached us. It will be remembered that Mr. William H. Goodenow, the Curator of the Department of Fine Arts at the Brooklyn Institute Museum, was good enough to send us proofs of a review which he was contributing to the *American Architect*. That review we published in our issue of March 8 last.

The work itself has now reached us, and many readers may like to know it. We do not propose to say more than that Mr. Porter seems to have spared no pains to establish his theory that the rib-vault was devised to do without timber centering. It may have been so, of course; but whether Mr. Porter's disposal of the more generally accepted idea that the ribs concentrated and took up the thrusts of the intermediate vaulting, and were, therefore, devised as a means of concentrating thrusts, is as complete as he thinks, readers must decide.

On Sunday, Bishop Hicks, of Lincoln, dedicated a memorial chapel to the late Bishop King at St. Martin's Church, Lincoln, and a memorial window to the memory of the late Ellen Stancliffe, the daughter of the vicar of the church.

The Construction of Lombard and Gothic Vaults, by ANTONIA KNOXLEY PORTER, London: Henry Frowde, Oxford University Press. 8s. 6d.

"SHAKESPEARE'S ENGLAND" EXHIBITION, KENSINGTON. BUILDINGS ADAPTED FROM OLD EXAMPLES AT ASHEY, ST. LEGER, WARWICK, AND
DIXTER, NORTHBOURNE. RENT. BY MR. E. L. LYTENS, F.R.I.B.A., Architect.



PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general business meeting of the Associate Section of the Edinburgh Architectural Association was held at 117, George-street, Edinburgh, on the 18th inst. The secretary's report, which was unanimously approved, stated that the session had been an exceptionally successful one. Mr. Sydney D. Kilson was elected chairman for the ensuing year, and Mr. T. Aikman Swan, A.R.I.B.A., vice-chairman.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY. A general business meeting of the society was held on Thursday, April 18, 1912, Mr. Sydney D. Kilson, M.A., F.R.I.B.A., in the chair. The hon. secretary, Mr. Wm. Whitehead, A.R.I.B.A., read the report of the council for the past year. The total membership of the society on March 31, 1912, was 182, comprised of 32 hon. members, 77 members, and 73 associate members. The society has been unfortunate in losing the services of Mr. Ralph W. Thorp, A.R.I.B.A., late hon. secretary; Mr. P. Musto, A.R.I.B.A., late vice-president; Mr. H. Ascoug Chapman, F.R.I.B.A., member of council; and Mr. J. H. Farrar, associate member of council, all these gentlemen having left the district during the session. The hon. treasurer, Mr. R. Fielding Farrar, presented a financial statement for the year, showing a balance of £57 19s. 1d. The report and balance sheet were adopted, on the motion of Mr. J. E. Braithwaite, A.R.I.B.A., seconded by Mr. Moreton. The following officers were elected to serve on the council for the session—President: Mr. A. E. Kirk, A.R.I.B.A.; Vice-president: Mr. G. S. Bowman, associate member; A hearty vote of thanks was accorded Mr. Sydney D. Kilson on his retirement from the president's chair. He had worked hard during his term of office, and with a spirit of comradeship that had been a pleasure for everybody.

LIVERPOOL ARCHITECTURAL SOCIETY. The annual meeting of the members of this society was held at Liverpool on Monday evening, Mr. Arnold Thornely, the retiring president, in the chair. It was reported that the membership consisted of fifty-three fellows and seventy-five associates, an increase of two associates, and that there were also three hon. fellows, eight hon. associates, and twenty-one students. The council recorded with regret the death of Mr. H. Rhoades Bate, who had been a member of the society for many years, and a vice-president, in 1888. The council had communicated with several of the bodies interested in the memorial to Sir Alfred Jones, the work of which had been placed in the hands of Sir George Frampton, R.A., urging the desirability of selecting a suitable site before the completion of the design, and agreeing the laying out of the Landing-stage approaches in a manner which would afford many excellent sites for monumental stairways. The following officers were elected—President, G. Haswell Grayson; vice-presidents, E. P. Hyde and W. Glen Dobie; hon. secretaries, Gilbert Fraser and E. L. Bower; hon. auditors, John Woodfall and T. F. Shepherd. As unofficial members of the council there were elected—J. Dalrymple, T. E. Ryland, H. Reilly, P. C. Lockness, Arnold Thornely, W. E. Willink, and R. B. Holt, fellows; and L. P. Aldrich and F. E. G. Baker, associates. Thanks were accorded to the retiring president.

LONDON MASTER BUILDERS' ASSOCIATION. A council meeting of the London Master Builders' Association was held at the Council Chamber, 10, Abchurch Lane, K.C., on Thursday, April 18, 1912, the president Mr. James S. Holliday,

presided. The president reported that the special committee and the law and Parliamentary committee had met, and would, in due course, submit their reports to the council. Correspondence, relating to priced schedules with tenders, provisional sums in quantities, etc., was read and instructions given. Messrs. Messers, Ltd., were elected an associate member of the association, and the following firms were nominated for membership—J. Mosses, J. A. Carter, Ltd., as ordinary member; Messrs. Bostell, Ltd., as ordinary member; 3 Mr. J. B. Smith, as associate member.

SURREY ARCHEOLOGICAL SOCIETY. The Surrey Archaeological Society held its annual meeting at Guildford last Saturday, Alderman Smallpiece in the chair. The council reported that the general question of the preservation of threatened antiquities had been before it in many forms during the past year. Quite the most serious danger was that which threatened St. George's Hill at Weybridge. Building operations at one time threatened the most interesting features of the hill, but thanks to the constant efforts of the Society's local secretary, Dr. Gardner, and to the ready acquiescence of the new owner, the worst dangers had been averted. The threatened destruction of the old cottages at Guildford aroused the Surrey County Council, which had now elected a committee to consider the question of the preservation of Surrey antiquities. The Council of the Society has decided to compile a list, arranged under parishes, of all Surrey antiquities of importance. The Society numbers 491 members. The Earl of Onslow has accepted the post of vice-president in succession to his father.

Correspondence.

THE R.I.B.A. AND REGISTRATION.

To the Editor of the BUILDING NEWS.

SIR,—In reference to the letter from the Institute Members' Club which appeared in the Journal of the R.I.B.A. of the 13th inst., we should like to point out that the question of Registration, with which it deals, is one so profoundly affecting the welfare of the profession that it should not be allowed to die through the apathy or indifference of the responsible guardians of the trust and obligations imposed upon them by the general body of the Institute. Nobody regrets more than ourselves the futile efforts made by the R.I.B.A. to deal successfully with a great problem which is of vital interest to every practising architect. These futile efforts were the result of an adoption of a foolish compromise which satisfied neither side, and subsequent events have shown that the compact made five years ago was an unworkable one. In these circumstances, we now feel free to take an independent course, and to definitely and finally throw over our allegiance to the policy of compromise then forced upon us, with which we have never pretended to be really in sympathy.

We consider that the R.I.B.A. scheme, even with any considerable modification of its details, could never become law, for it is ludicrous to suppose that any Government would permit the Institute to become the sole examining body for granting diplomas, or allow to have sole jurisdiction over the profession of which it forms so small a part. For instance, the University of Cambridge has inaugurated a School of Architecture, and instituted examinations on a higher and more comprehensive scale than those of the Institute. Is it likely that this ancient seat of learning, one of the two oldest educational centres in the Kingdom, with its two Parliamentary representatives, would submit for one moment to the proposed dictatorship of the Institute?

Again, is it reasonable to assume that the University of Oxford, which will probably follow the sister University in founding a course of study in architecture, with its prestige, power, and influence behind it, will stultify a more than probable future

educational extension by passively submitting to the phylandering scheme of the Institute?

Surely, having regard to the fact that the policy of the R.I.B.A. is bound to bring about the active opposition of the distinguished Parliamentary representatives of these Universities, whose views on educational questions would be unlikely to be accepted by Parliament almost without question, there would be no chance of the Institute's Bill becoming law, unless the equitable recognition of these and other educational bodies were freely accorded.

As a melancholy example of the short-sighted policy of the Board of Architectural Education, whose action was subsequently confirmed by the Council, we may quote the case of Cambridge University.

Certain universities of recent formation, and without Parliamentary representative, which have adopted the R.I.B.A. regulations in regard to architectural study, were regarded as "recognised schools," and, as such, obtained certain privileges—i.e., exemption from the Intermediate Examination, etc., whereas Cambridge, with a higher standard of education, and powerful influence in both Houses, was not accorded a similar exemption. The absurdity of this exclusion is more apparent when certain other facts are taken into consideration, such as the privileges accorded to Liverpool and Manchester, which were granted because these universities taught "Design," whereas Cambridge does not pretend to do so.

The reason for excluding Cambridge is not quite clear, inasmuch as "Design is only an optional subject in the Intermediate Examination, and the subject itself has become absolutely chaotic when it is remembered that the leading opponents to Registration have declared over and over again that "Design" cannot be taught, and therefore, we should have thought, could not become a subject for examination.

However, the question of education is one of far too serious a nature to be allowed to be treated thus lightly and illogically; and consequently as a preliminary proceeding we think the Institute would be well advised to approach the older Universities on the subject of architectural education in a far more friendly and conciliatory spirit than it has yet shown, with a view to eliciting their guidance and support. Further, it is folly for the Institute to imagine that it has the remotest chance of securing Parliamentary recognition for its members without due assurance that its proposals will not encounter active opposition of the Surveyors' and Engineers' Institutions, to say nothing of the many borough and county councils, all of whose bodies will assuredly have to be placated.

In short, the Institute must remember that it is acting for the welfare of a large profession, of which it forms only a part, and not for the individual glorification of its members.

There is much spade-work to be done by the Institute before any Bill can be drafted, and if the R.I.B.A. would condescend to set about this preliminary work instead of forming itself into committees to draft Bills which have no earthly chance of ever becoming the law of the land, the Council would be embarking on a course of profitable work. The continuance of its policy of spending its time and irritating its more serious members in futile efforts to obtain Parliamentary recognition without first preparing the ground seems to us to be nothing more or less than trifling with a stupendous problem which has yet to be solved.—We are, etc.,

A. W. S. CROSS.

GEORGE HUBBARD.

Grand Hotel Londres, Royal Deux Tours, Verona, April 21.

All Saints' Church, South Acton, is about to be renovated structurally, including the west front, tower, and spire, which are to be restored under the supervision of Mr. Maurice B. Adams, F.R.I.B.A., the contractors being Messrs. T. H. Adamson and Sons, builders, of Putney, S.W.

CURRENT CALAMO.

Some of the dailies are again piling up the agony about the "coming strike in the building trade." We have said again and again during the last six months that no strike is likely, and we are glad to see one of the most sensible of the Labour leaders is of the same opinion. Mr. F. Chandler, the general secretary of the Amalgamated Society of Carpenters and Joiners—the largest organisation concerned—speaking to a representative of the *Manchester Guardian* on Tuesday, said that the question of amalgamation or federation of the various trade unions connected with the building trade had been under consideration for some time. The outcome of a meeting held recently was the appointment of a committee to draw up a scheme for submission to a further conference, which will be held about a month hence. This movement, however, was not inspired by any aggressive idea of a national strike for enforcing the demands of the workers as an ultimate object.

That is what we explained last December. There is a growing tendency on the part of all trade organisations having mutual interests to combine, and the building trade workers have no other present motive than to strengthen their forces from a bargaining point of view. Whether a national movement to improve the conditions of all classes of workers in the industry will be entered upon if the amalgamation project should be attained remains to be seen. The fact that the Carpenters' and Joiners' Society is at present concerning itself solely with an effort to secure increased wages for its own members shows clearly enough that no such "all grades" movement is on foot. Mr. Chandler stated on Tuesday that satisfactory progress in this direction is being made by the Carpenters and Joiners. "In Manchester," he said, "the employers made an offer which our men did not think quite good enough, and they have responded by making a revised offer on which the men are going to ballot. In London, where the men are asking for a considerable advance in wages, the employers are quite reasonably disposed, and the question will, I think, be settled without difficulty. In the country generally we may have one or two little disputes, but the employers as a whole are meeting us fairly, and I certainly do not at present anticipate any widespread trouble." Nor do we.

We have not seen the estate, but certainly the accounts of the inauguration of the new "Garden Village" at Kewworth last Saturday indicate more businesslike conditions than have prevailed in connection with some of the other "ideal" ventures. About a thousand acres are to be developed. The houses are from designs and plans prepared by Mr. Edwin Lutyens, F.R.I.B.A., and are to be carried out in detail by Messrs. Pepler and Allen, F.S.L., A.R.I.B.A. The houses will be built and sold by the company at an inclusive price, and it is stated that not only artistic but good work is assured. An important feature of the scheme will be a co-partnership tenants' society, which is arranging to build cottages surrounded by ample garden space, and to be let at 6s. 6d. and 6s. 6d. per week, according to the size. No cottage has less than three bedrooms, and bathrooms are insisted on in every case.

Two of "their staff" being Fellows of the Institute, there can be no possible doubt whatever, of course, of the fact our Indian contemporary, *Indian Engineering*, points out in the concluding sentence of a paragraph in its issue of March 30, just to hand:—

"We have received a little portfolio containing photographs of thirty-four important public buildings built by Messrs. Martin and Co., engineers and contractors, of this city. Many of them have also been designed by their own architect. The portfolio contains samples of every class of structure—offices, residences, factories, and churches—showing that this firm is at home in all the forms of architecture practised in this country, two of their staff, in fact, being Fellows of the Royal Institute of British Architects. It is evident Messrs. Martin and Co. are in a position to carry out easily both the designing and erection of important buildings in any part of India—a fact which Indian chiefs in remote places may take note of."

Friendly relations of this sort between the architect and the contractor, if not ideal, no doubt save a deal of bother, and enable the latter to "carry out easily the designing" needed by "Indian chiefs" and others!

It looks as if the Government means to hand us over body and breeches to the tender mercies of the Railway Companies. The memorandum published on Tuesday states the objects which the Bill has in view, but fails altogether to show that the Bill provides a satisfactory method of attaining them. "The Government will propose to Parliament next session legislation providing that an increase in the cost of labour due to an improvement of conditions for the staff would be a valid justification for a reasonable general increase of charges within the legal maxima, if challenged under the Act of 1894." What is meant by a "reasonable" increase? The companies say, "We are paying our servants more; you must therefore pay us proportionately more." The public reply, "Certainly; we are willing to pay more, but as you have all the details of the increased payments to your servants, besides the knowledge of all your other expenditure, show us that your increased charge to us is reasonable." Or, rather, that is what the public should be able to say, if it believes that any increases are unreasonable, and that is what, under the Railway and Canal Traffic Act, 1894, it has the power to say to-day. But under the new Bill that power will be gone, for, if the Bill be passed unamended, the companies will then say to the public:—"We are the only people who have the means of showing that these increased charges which you now have to pay are reasonable or unreasonable; but if you don't like them, you can go to the Railway and Canal Commissioners and try to prove that they are unreasonable."

A more complete surrender of public rights is unimaginable. Hundreds of our own readers know by bitter experience already acquired what will follow if the companies are to be practically the sole judges of "reasonableness." And, remember, this applies to every form of increased rate—to the increase for which the consent of the Railway Commission has to be obtained, to an increase already in force of which complaint may be made, and to an increase of a rate which has been experimentally reduced. The details of their increases in wages should alone enable the companies to justify the increased rates which they propose, and it is contrary to the public interest to relieve them of their present obligations. The Railways Bill should only give the companies all the Government has promised without saddling

the public with the excessive charges to which it will shortly be exposed with no hope of remedy. More than anything else railway rates already cripple many of our own industries: are they to be allowed to continue to grow, while the foreigner is favoured at our expense?

The Works Committee of the Holborn Borough Council has recommended that High Holborn should be paved with granite sets, having come to the conclusion that to secure a durable paving to bear the constant vehicular traffic it is necessary to rule out asphalt and wood-paving. We are not surprised; but if other authorities follow suit, the yearly increasing wear and tear of our nerves will be terribly intensified. Those who have watched the effect of the motor bus traffic on wood pavements, which even in streets where there is comparatively little traffic seem unable to hold together in this searching dry weather, will admit that, at any rate, the tram-car doesn't tear up our road-like its rival and the rest of the motor vehicles. Properly laid, a good asphalt like Val de Travers—no rubbish of the sort some authorities seem content with—will stand any traffic that ought to be allowed on the roads. It is, moreover, dustless, easily cleaned, and sanitary, while wood pavement is neither. Our suggestion, anyhow, is that local authorities should seriously consider the possibilities of compelling motor vehicles to use wheels that do not tear up the roads, before returning to granite sets.

The Pope, after all, did not have the pleasure of hearing the bells of the restored Campanile of St. Mark rung yesterday at its inauguration. As the Pope bore the expense of recasting them, the idea of connecting them by wires with the Vatican occurred to him. He caused his desire to be made known to the "Minister of Posts and Telegraphs," who at once expressed his willingness to gratify him. The bells are five in number, named respectively the Marangona (which rang the arsenal carpenters to and from their work), the Nona, the Pregadi, the Trottera, and the Renghiera, and the Minister intimated that he, by means of five wires, would connect them with the telephone in the Pope's room. The Pope was delighted. But he had counted without his host. When the Cardinals of the Curia heard of it they objected to the Vatican accepting a courtesy from the Italian Government. This put the Pope in a rather awkward position, so his medical adviser has certified that, as he is not in a good state of health, the excitement that would have been caused by the bell-ringing might have had evil consequences. The new campanile is a facsimile of the old. It retains all its old features, inclusive of the celebrated loggia, with all its minute sculptured details in marble and bronze. At the same time the architects have, we are assured, taken good care to make it more stable than its precursor. The old campanile was structurally defective, both in regard to its fundamental support and the materials employed.

In the Spring a lady's fancy lightly labours as with love at the annual house-cleaning. One of her, encouraged by her mother-in-law, went to the stores. "Do you keep all kinds of paints?" "Yes, ma'am." "Do you have all colours?" she continued. "Yes, ma'am." "Then," said she, "I want a quart of green paint with a white stripe in

LEGAL INTELLIGENCE.

IN THE MATTER OF THE ARBITRATION ACT, 1881. Between Messrs. John Barker and Co., Ltd., and The Hurlingham Club. Continuing our report from p. 541 of our issue of April 12, it will be remembered this is a dispute arising under a contract dated November 19, 1906, for alterations and additions to the Hurlingham Club, to cost £32,000. Charles F. A. Poland is the arbitrator, and has already held eight sittings at the Royal Courts of Justice during March last; Mr. T. Woodbridge Biggs representing the claimants, and Mr. C. Herbert Smith the respondents. On Monday last the case came before Mr. Poland again. At the outset Mr. Herbert Smith called the arbitrator's attention to a slight slip in his ruling, and wanted it made clear that, while the claimants contended they had overpaid the respondents, they do not ask to have any such sum, which may have been overpaid repaid to them. Mr. Herbert Smith then wanted to know what items Mr. Biggs was going to eliminate—Mr. Biggs: When I come to them I will tell you. Mr. Herbert Smith: No, I want to know now. The Arbitrator: I think we had better let Mr. Biggs go on with what he wishes to say. I have your objection, Mr. Smith.—Mr. Herbert Smith: You must take it in this way, sir. Messrs. Barker are to be congratulated upon their very strong financial position. Cost is nothing to them, but to the club this arbitration is becoming a very serious matter from the standpoint of expense. You have ruled, as I understand the ruling, that you are not to deduct from this sum, speaking roughly, that a very large percentage of the claim is not admissible in this arbitration, and must be struck out, and it is perfectly clear it must be. I strongly protest against the running up of costs by going into items which are not admissible, and which you are not to deduct. It is not admissible, and which Mr. Biggs admitted, if you did rule in the way you have ruled, would have to be eliminated, and therefore I ask you to bear in mind this very serious question of costs incurred by me, speaking roughly, quite unnecessary to go into and which ought not to be touched upon.—Mr. Biggs: I shall go into such questions as counsel has advised me of.—Mr. Herbert Smith: I am quite regardless of what counsel has advised you. I am speaking of the arbitration, and the arbitrator.—Mr. Biggs: Mr. Smith was going to complain about delay. There has been no delay.—Mr. Herbert Smith: I was referring to the question of expense. If you think that you are going to wear me down on the question of expense, you will find you are mistaken. I shall ask the arbitrator to rule on each of these items to begin with, and I shall not cross-examine on them until he has done so.—Mr. Biggs: And we shall take the same up if we feel that we are not strong enough to meet them upon it.—Mr. Herbert Smith: He will let a lot of items which clearly cannot be dealt with in this arbitration as long as you rule stands, sir—three questions of extras and so on—and it is obviously waste of time. Mr. Biggs is trying to get behind your ruling for an ulterior purpose.—Mr. Biggs: It is not for you to say what I am trying to do. Mr. Herbert Smith: I know perfectly well what you are trying to do.—Mr. Biggs: I repeat it is not for you to say so.—Mr. Herbert Smith: I say that you will win the case, Mr. Biggs.—Mr. Biggs: You do so many things. Mr. Herbert Smith: At all events, sir, you have my objection. The Arbitrator: Yes, I have it in my mind. I think we had better go on.—Mr. Biggs then called upon Mr. Harris, of the Midland Railway, who said he was a builder's assistant and had been with Messrs. John Barker and Co. about ten years, but was now in the employ of Messrs. Howell J. Williams. While at Messrs. John Barker's from two drawings shown to him, he had made the estimate, and he had prepared an estimate in which he considered what old materials, etc., would accrue in carrying on the work, and placed a value on them of £291. In the specification there was a clause: "All materials to be used in the work of building down, and are suitable for the works of adaptation, may be used, but only with the consent of the architect. All sanitary and other fittings, etc., not required are to be removed from the premises and the contractor must be responsible therefor." The contract was dated November 19, 1906. He had charge of the job. He met Mr. Lutens, the architect, on the job on one or two occasions—not many times. He went to Mr. Lutens's offices four or five times for information or details, and he was not responsible for the drawings or specification. He got the details after they had started with the work—he meant the work generally, not that they had gone on with any particular work

till they had got the details. They had a clerk of works there—Mr. Donovan—but he was dead now. When he went to Mr. Lutens's office he mostly saw Mr. Thomas, who told him that he did not want a lot of correspondence, but that what he wanted was to take his instructions. Witness took Mr. Thomas's instructions from time to time. He remembered preparing a subsequent estimate for £344 13s. for additional work on the ladies' lavatories. Mr. Lutens's office, from a rough plan, Mr. Thomas explaining what he wanted done. Asked how the estimate came to be reduced to £320, witness said he took it that it was reduced by the firm's manager. He did not know whether there was any agreement or not until he got to fit that £320. They had a blue order for that and for two subsequent estimates. He prepared an account for the work done in draft. That shown him was the one. It was sent in on November 19, 1906, and was not paid for it. He left Barker's in 1908. Mr. Biggs then proceeded to question witness with regard to an item for rearranging the electric-light wiring; but the arbitrator said it was outside the four corners of the contract, and he was not to listen to it. Mr. Biggs had present who did the work. Further items were discussed, some being dealt with by the arbitrator, and some not. With regard to the last few items, the following passage of arms took place and the proceedings were adjourned. Mr. Biggs: This drip-drip.—The Arbitrator: I cannot deal with that item.—Mr. Biggs: We shall no doubt put all those items into a separate account and sue for them direct.—Mr. Herbert Smith: We will not forget that you have put your claim in under the contract, and we are quite willing to fight you.—Mr. Biggs: You will be tired before we shall.—Mr. Herbert Smith: Do not rely upon that. We have got a good many people in our club who will not be blackmailed by Mr. Herbert Smith. It is pretty near it.—I shall not forget to mention this when we come into Court.—Mr. Biggs: I do not trouble about that. This next item is 51.—The Arbitrator: I cannot take evidence upon that.—Mr. Biggs: I leave it to the Arbitrator.—Mr. Biggs: That is an end of the items. Now we have got exactly what you refuse to deal with.

BUYING BRICKS IN THE LUMP.—Mr. Jarvis and Hoath, brickmakers, of Turnbridge Wells, v. William Thomas Burrows, plaintiff, heard at Macclesfield County Court on Wednesday week, before Judge Parry, was a claim for £46 odd for bricks supplied. Mr. Mercer, barrister, represented plaintiff, and Mr. R. Burrows, barrister, for the defendant. Mr. Mercer said that the plaintiff was Charles E. L. Westbrook, auctioneer, of Turnbridge Wells, who stated that in December last he received instructions from plaintiffs to sell a quantity of bricks for them. He wrote to defendant, and he sold him 250,000 bricks, more or less, at 17s. 6d. per thousand, adding that the defendants "must take them as they stood." Defendant agreed to purchase, and paid a deposit. He had, however, refused to take away many thousands of the bricks, and it was in respect of these that the claim was made. Cross-examined, witness said that 90 per cent. of the bricks left behind were fit for building purposes. Defendant was mentioned that between 50,000 and 60,000 of the bricks had not been removed by defendant.—Thomas J. Farrant, brickmaker, stated that, in his opinion, quite 90 per cent. of the bricks left behind were good, and he subsequently sold them. Defendant, giving evidence, said that having obtained a contract to build a school at Turnbridge Wells, he offered to purchase "250,000 bricks, more or less," of plaintiffs, at the price stated, and Mr. Westbrook, by telephone, told plaintiffs had agreed to accept his offer. Nothing was said about taking the bricks as they stood. He refused to remove the remaining bricks because they were unfit for building purposes. He should say there were about 30,000 bricks left behind.—William Cox, builder, of Stone street, Macclesfield, who had examined the bricks in question, confirmed the statement of defendant, and said that he had seen and used for any good class building. They might be used for speculative building. Herbert Burrows, son of plaintiff, also gave evidence. His Honor thought defendant's case was a strong one, and gave judgment in favor of plaintiff, for £40 and costs.

"REASONABLY FIT FOR HABITATION."

In the Manchester County court on Tuesday, Abraham Stott, tenant, v. The Yorkshire and Lancashire Insurance Co., Ltd., and Edward Simpson, of Royle street, in Chorlton-on-Medlock, as

trustees of the will of George Dixon, for £12 as damages for personal injuries. Mr. Barritt, for the plaintiff, said the case was one of public importance, because it raised a question as to the construction of the House of Commons and Town Planning Act of 1909 which provided that whenever a landlord let a house of less than a specified rental it must be "reasonably fit for human habitation." In January last the plaintiff became tenant of the house on Claydon street at a rental of 6s. 4d. a week. A few days afterwards, when carrying a clock and sawdust upstairs, he grasped the newel or upright post supporting the hand-rail, with the result that it snapped in two, and fell with him on the bottom of the stairs. For three weeks he was unable to do any work and had to be mechanically attended.—Judge Mellor: How much weight should a hand-rail stand? Mr. Barritt replied that his rail and newel were made of defective wood, and were otherwise unsafe, and contended that under the Act it was not necessary for a landlord to have notice of a defect. It was his duty to see that his houses were in proper tenable condition. The Judge asked whether there was any decision by the higher Courts that a defective hand-rail made a house not reasonably fit for human habitation. Mr. Brocklehurst, for the defence, said there had been no such decision, and that it was a matter of fact, and in the other that dangerous ceilings, made a house unfit for human habitation.—Mr. Barritt pointed out that in the ceilings case it was held that a tenant had a right to sue his landlord for a defective ceiling, and that the evidence was given that at the time of the accident the woodwork in question had not only dry-rot, but that the landlords could have ascertained its defective nature by sending an expert to make an examination. An expert was sent for the defence, and he found that there was no dry-rot, and asserted that the hand-rail and newel were of the size and strength of those usually put into houses of this class. Examining the plaintiff's picture, he was of the opinion that the newel was more like cotton-wood than wood. It was most important, he added, that these hand-rails on stairs should be of sufficient strength to serve their purpose as supports.—Mr. Brocklehurst, after calling other witnesses, contended that the landlords were not liable, because there had been no breach of duty. A house must only be reasonably, not absolutely, fit for habitation, and there was nothing in the appearance of the newel before the accident to lead the defendants to think it unsafe.—The Judge said that under this Act and its predecessors there was an implied condition that a house was reasonably fit for habitation when it was prepared to hold that this particular house was not fit for human habitation, and that the weakness of this woodwork would have been discovered if the landlords had sent an expert to test it. There was no judgment for the plaintiff for £10 and costs.

IN RE GERARD.—On April 18 a sitting was appointed for the public examination of Mr. Ernest Gerard, architect, of 167, Strand, who was interested in a scheme for the acquisition and development of the Strand and adjacent area. Mr. W. G. Williams, Assistant Official Receiver, said that the first meeting of creditors stood adjourned to July 17 next, to enable the debtor to submit a scheme of arrangement. Mr. Registrar Hope adjourned the examination to July 16.

THE LATE MR. ALBERT CHANCELLOR.—Last Friday, at the adjourned first meeting of creditors, under the failure of the late Mr. Albert Chancellor of Richmond, the late Mr. Albert Chancellor of Richmond, and Sons, estate agents, auctioneers, and valuers, Richmond. The chairman stated that he had visited Mr. Chancellor, who had now handed over the lease of the debtors' premises, and the ground of it having been given to her by an aunt twenty-five years ago. Eventually the creditors decided to appoint Mr. Percy Mason, chartered accountant, of 15, Abchurch Lane, London, E.C. 4, as trustee of the estate and property of the bankrupt, assisted by a committee of inspection. An order of application will also be applied for.

IN RE MR. E. A. RINTZ, F.R.I.B.A.—The summary hearing, under the failure of the late Mr. Ernest Augustus Rintz, of Victoria-street, Westminster, architect and surveyor, who filed his own petition on the 3rd inst. Mr. E. S. Grey, Official Receiver, who, during the last year or two, had acted as a director of the Brickbank Bank, resigned about 1908. His business of architect and surveyor was very successful until 1905, but had since fallen away in consequence of the regulations of the Law Society and the failure of the Law Guarantee Trust and Accident Society, Limited. A statement of the

about affairs show a balance of £8,387 15s. 2d., which £3,084 0s. 7d. was expended to rank, and assets valued at £5,303 15s. 2d. An order of application in bankruptcy had already been made and the case was on in the department of the Official Receiver.

Our Office Table.

The General Board of Studies of the University of Cambridge recommend that a Board of Architectural Studies be established in the University. It is proposed that the board should consist of the Vice-Chancellor, the Disney Professor of Archaeology, the Slade Professor of Fine Art, the Professor of Mechanism and Applied Mechanics, the Reader in Classical Archaeology, four members of the Senate elected by the Senate on the nomination of the Council, each of whom should serve for four years, together with two additional members nominated by the Senate. The duties of each year, the duty of the board will be to supervise the teaching of architectural studies in the University, to draw up lecture lists for inclusion in the lists of lectures published by the General Board of Studies, and to admit students to courses of research in architecture.

The King has expressed his regret that he cannot visit Portsmouth next month, when the chapel of the National Naval School is to be dedicated by the Bishop of Bath and Wells. He will be represented by H. S. H. Prince Louis of Battenberg, who will inspect the school and give away the prizes to the boys. H. R. H. Prince Henry of Battenberg laid the foundation stone of the school buildings some years ago, and H. R. H. Princess Christian visited Portsmouth when the school was opened. The school is beautifully situated on the shore of the Bristol Channel. The design of the school buildings is by Mr. Edward Gabriel (Edmond and Gabriel), who also designed the chapel which is now nearing completion. Messrs. Cowen and Sons, of Bristol, were the contractors for the school buildings, and Messrs. Samuel Harent and Sons for the chapel. H. S. H. Prince Louis of Battenberg has fixed the date for his visit on May 14.

The Archdeacon of Halifax (the Ven. W. Foxley Norris), in his visitation charge, spoke strongly on the subject of church emblems. He means of screens, painting, and other carved or painted material, and stained glass windows. He said: "I have no hesitation in prophesying that strenuous, and probably ineffectual, efforts will be made in the next generation to get rid of much of the glass that is being so lavishly and thoughtlessly put in at the present time. It seems to be entirely forgotten that working in stained glass is an art, and that the attempt without disaster by framed artists, and is necessarily very costly. There are very few artists in stained glass, and they well know the limitations and the exceeding difficulty of their art. But the demand is general. A supply of a sort has arisen to meet it, and very cheap, poor stuff is turned out, so much so that a spare for lay dealers in all sorts of decorated commodities, who find that it is necessary to add a stained glass department to the rest of the wares, and I do not blame them. But the designs sent in are so deplorably bad in drawing and in general conception that criticism is difficult. There is no thought and whatever paid to the architecture of the church or to the limitations of the medium. I have no patience to offer, but I do entreat those in authority to, in the first place, to pause and consider; secondly, if they must give way to the common window demand, to consult their own good taste and judgment and to give the work to a recognised artist; and finally, to remember that it is the most costly kind of work, and the least useful, and that it is almost impossible to get a money value for it."

The programme for the International Building Congress, to be held in Amsterdam in 1913, has just been adopted by the permanent committee at Brussels. It will include

town planning, the housing of working classes, the sanitation of congested areas, etc. One of the most interesting features of the Congress will be the collection of information concerning results obtained in various countries from experience in municipal housing. The idea emanated from the French delegates, and it will be interesting to see, as the result of the collection of this information, how far there is truth in the charge which is made by some that municipal housing tends to kill private enterprise. On this point the Elbow Lake Company recently applied to the Elgin district council for the provision of further houses for the accommodation of workers in new industries, on the ground that although under the company's own schemes, within twelve or fourteen years, 1,500 houses had been erected, the intervention of the district council, which had built houses of its own, had so diminished the value of housing accommodation that private enterprise had been stifled, and can no longer keep pace with the local authority, which can not only obtain cheaper capital, but enjoys many other advantages also.

A conference on the housing question was held under the auspices of the Southampton Trades Council, on Wednesday week, in the Ogby Hall. There was a large attendance, ninety-seven delegates being present, representing over fifty societies. Councillor G. A. D. Webb, who presided, declared that the Southampton housing scheme was a means of clearing away an area that was not of a very desirable character, and that the scheme had not been unduly expensive. Mr. Fred Kneze, secretary of the National Housing Council, pointed out the different ways by which the town council could clear away unsanitary property. If a house were picturesque but not fit to be used in, it ought to be demolished. If it was a danger to health it was a danger to life. After some discussion the following resolutions were unanimously adopted: "In view of the rapid development of estates that is taking place in the immediate neighbourhood, and having in mind the need for open spaces and roads, squares, parks, etc., it is considered desirable that the three local authorities, i.e., Southampton, South Stoneham, and Itchen, together with the Hants County Council—do confer together through their medical officers and surveyors to consider and report as to the best means of giving effect to the Town-Planning Act. Further, in view of the dearth of houses at a rent within the limits of working classes, and the overcrowding due to excessive rent, which compel two or three families to live in one house, we call upon the local authorities to adopt a constructive policy to include the acquisition of land and the erection thereon of suitable cottages." It was arranged to appoint a committee of fifteen, with power to add to their number, to give effect to the resolutions and to collect and publish facts on the subject.

At the recent town planning conference at Wimbledon, reference was made to the heavy expenditure necessitated by serving notices under the Town-Planning Act. The cost of these notices could be diminished very materially, says a writer in the *South Eastern Gazette*, if the results of the valuations which are made in connection with the land taxes could be made use of by the local authorities. There would seem to be no reason why it should be necessary for two or three sets of valuations to be made, or for information to be collected two or three times over by different bodies. An immense saving to the country would result from the one valuation and survey being made available for all purposes.

The town council of Denbigh recently presented to the Local Government Board an application to sanction a loan of £10,000 to build a new market, public hall, fire station, and municipal buildings. Since the application went up certain ratepayers organised opposition and have prepared a petition in favour of a modified scheme. The council have also received notice of opposition from the assessor, who are large ratepayers. The council have met unanimously and of their own initiative unanimously

passed a resolution withdrawing the application made for sanction to the loan of £15,000 for the buildings, and abandoning the whole scheme, the council having decided that they will not carry out a modified project, as they considered it would be inadequate.

Mr. Rudolph P. Miller, Superintendent of Buildings for the Borough of Manhattan, New York, has adopted a method of informing architects and contractors of any modifications of by-laws or rulings of the Building Department, which, if effectively maintained, will obviate much annoyance, delay, and expense. This plan consists of issuing numbered bulletins covering all rulings, modifications of the code, and approvals of new materials of construction, as soon as action is taken, posting these in a conspicuous position in the Department, and sending copies to publications conducted in the interests of architecture and building. Among the bulletins issued by Mr. Miller during the last few weeks are fresh rules affecting executing alterations in concert-halls, floor partitions in fireproof buildings, the use of lime points, and hydrated lime in cement mortar, eccentric loads on columns, the employment of hollow tile building blocks, and the inspection of plasterwork. Mr. Miller's scheme might with advantage be followed by the leading municipal authorities in England, and would obviate much friction between architects and their clients and borough officials.

Dr. Edgar L. Hewitt, director of American archaeology for the Archaeological Institute of America, is now on his way to Guatemala to complete his research work in the ruins of the Mayan City of Quirigua, which is believed to be the oldest city on the two American continents. Work has now been in progress about a year, and will continue until the entire city is laid bare. This will be the first ancient city in America to be entirely uncovered. Excavations at Quirigua have disclosed temple walls and sculptured monuments, bearing hieroglyphics. The reading of these hieroglyphics, it is hoped, will be the means of solving the problem of the origin of the race inhabiting the Americas.

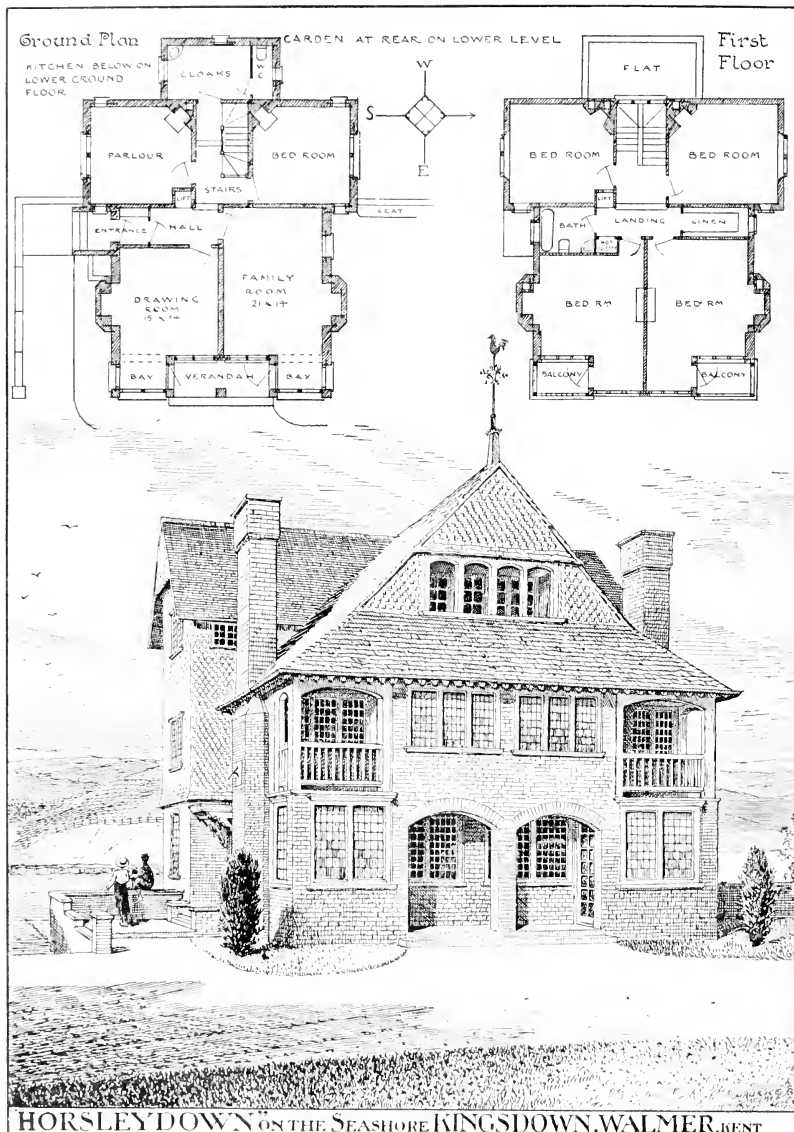
A cement house put together with a screw-driver is a novelty which has been recently introduced in the United States. The system is designed for houses of a more or less temporary character, or for houses that are liable to be moved from point to point, such as a temporary workshop or a private garage. The system consists of blocks of concrete in which has been buried a wire spiral with an opening in the cement to take a small bolt. These slabs are bolted in position over a metal or wooden frame, and when it is desired to move the structure the bolts may be readily removed with a screwdriver, and the whole structure transported, without any damage, to any desired spot.

The salary of Mr. Arthur J. Abbott, F.A.S.I., building surveyor and sanitary inspector to the East Hamet Valley Urban District Council, has been increased to £225 rising by £10 annually to £235.

A new city hall is about to be built at Cleveland, Ohio, from plans by Mr. J. Milton Dyer, of Cuyahoga Building, in that city. The cost is not to exceed £320,000 sterling. A group of hospital buildings will also be new road in Cleveland, from the designs of Mr. Myron P. Moore, of the same city, the estimated outlay being £280,000 sterling.

The Canadian Northern Railroad are entering upon a heavy construction programme this season. The year's work will include the opening up of 1,000 miles of new road. Nearly 14,000 men are at present engaged by the company, and, later on, this number will be augmented to 25,000. Next year the work will be even more extensive. One of the items for 1913 is the completion of the transcontinental line from Montreal to Vancouver. To complete the Ottawa-Montreal section, the company will build this year, from Montreal to Hawkesbury, a stretch of fifty-eight miles. The plans for the station east of the British Columbia portion of the railway are being prepared by Mr. F. M. Rattenbury, architect, of Victoria, B.C.





THE BUILDING NEWS AND ENGINEERING JOURNAL.

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HANGINGS AND "CHURCH-HANGINGS."

It is some time ago since the two subjects of "Furniture and Church Furniture" were selected for the consideration of the Institute on the same evening, and since Mr. Belcher and Mr. Woodward expressed conflicting opinions on the importance to practising architects of the subject that set before them, Mr. Woodward mentioned a house in which—and in one particular easy-chair of which—he had spent a great many hours; but that chair was not designed by an architect; rather, on the contrary, by an artistic craftsman, if he might call him so. Mr. Belcher, on the other hand, who read the first paper, hoped it would call architects' attention a little away from drains and the like. Mr. Woodward thought that if the architect who wasted his time in his client's nosey in designing furniture would turn to the craftsmen who produced the great works, both in design and execution, which came from Santa-Cruz, he would see an important difference between his work and theirs.

"Drapery," or what used to be called drapery (for we buy the materials for in the draper), is much the same as what our predecessors in earlier times called "hangings," because it hung loose from rings and hooks. It used to be, and still is, an arrangement for obtaining warmth, or the look of warmth, and for breaking and veiling the angular lines of architecture, and so gaining at once advantages both in form and in colour. A woven fabric must be fairly dense and suggestive of warmth and shelter, and not be flaccid, must be firm, and falling into good folds. Woven materials of this sort are chiefly made of the following fabrics: 1. Wool, of several sorts; 2. Silk; net-silk; spun-silk; cotton-linen; and jute.

1. The finest wool is that of the Syrian goat, known in the trade as "mohair." It was delineated by Mr. H. Hunt in "The Sappagat." Long, straight wools are chiefly from England, north of the Trent, and generally from the colder parts of Europe. Scotch, hair is much the loveliest of wools. South-west, Saxony, Australian, and wool from warm climates are shorter, and fine in fibre, and wavy. They are usually allowed to wriggle up and felt together, and are spun so, by the name of "woollen."

1. Silk. This used also to be flaccid and springless, but it has long been used merely for "facing" fabrics; the backing being of long-haired wool. So used, there is nothing against it but its cost. A silkworm's thread long enough to reach from London to Edinburgh, would go by our letter-post for 2d. "Net-silk" consists of the very fibres the silkworm makes, wound off the

coccons by hand, and afterwards manipulated under the term "the web." "Spun-silk" is spun by machinery from imperfect coccons, inside of which the worm has either died or has eaten its way out. In neither case can the thread be wound off. The coccons have first to be softened and boiled in water, then made into a low-class silk thread, only worth per pound about one-fourth of silk spun from matured, healthy coccons.

2. Cotton is treated like long wool, the fibrous being kept straight. Its nature makes it thread and knotless. It has enough good qualities to keep it in use, but always in a very inferior position. Where its cheapness tempts the manufacturer to use in the cross-threads also, its tendency to crumple has overwheeled many beautiful fabrics altogether.

3. Linen and Jute.—Their stiffness and springlessness, and their tendency to crumple, have mostly kept these two materials down to nearly as low a place as cotton, though jute has been found to make a respectable velvet. Except in three or four shades, such as Turkey red and indigo, dyed cotton fades sooner than other dyed materials; and with the dyes just named it has a hard, mechanical look, which is seldom very pleasant. The following is a list of drapery fabrics, in the order of their goodness, beginning with the best. 1. Old tapestry. 2. Twills, satins, etc., made from long wool, or from goats' hair. 3. Woolen cloth. 4. Silk, damask or plain, if firmly woven, or backed with cross-threads of worsted. 5. Oriental veilings and tent coverings. 6. Velvet or mohair and wool. 7. Cevalat and moreen, and woollen serge, if on a worsted warp. The following materials Mr. Adam Heaton classes as bad: 1. Cotton velvet, plain or printed. 2. Low "art" serge on a cotton warp. 3. Soft cotton fabrics generally, whether plain or printed. 4. Silk plush. Next to tapestry, might be named certain goods which come from Khir, and bear the general name of "Khalim"; but they cannot be obtained in quantity. We might copy them; but what we actually do is to order them lower and lower in quality till at last they become quite valueless.

Nothing has been said, so far, about that important element in a fabric which we might call its "construction," which is all sometimes hidden beneath an artificial nap, as in our clothes, and beneath a mere frizzle, as in felt. If this view only excluded flannels, felts, fine satins, of cottons or silks from materials suitable for "hangings," we might gladly apply it all round; but we cannot afford to exclude woollen cloth, which for centuries has had a raised or dressed surface, and is still in many ways a most excellent material. As

to those of these fabrics, there is no need to recommend people to buy curtains—they are sure to do that. Good taste will always incline to making the "valance" a prominent feature. It does not gather dust quite so quickly as ladies suppose, and in the form of the "prieure," hung by rings or studs from a moulded dach-rail, is easy to remove and shake.

The curtains of churches are generally in their lower part, hard, bare, and very inelastic, and to put hangings there will furnish them, with carving and painting at ten times the cost, will never do half as well. So, Mr. A. Heaton concludes his paper.

In recent times church-building has fallen far below what we or our predecessors desired to make it—an excellent revived thing. Now every one is free to think as he likes, which, as Sir Alma Talma said, accounted for the great variety of expression in the work of to-day. Some things, and a foolish will not make up for the absence of thought, and drapery should not be regarded merely as an expedient for shutting out objectionable features. It should have its proper place assigned to it by the architect. Unless haste is fatal to good work.

"Rich and peculiar," says Mr. Vasey, "buy their furniture from the upholsterer, as they buy their funerals from the undertaker. The principal impression made on them is by the bill; and by what they pay they measure their greatness." The architect's work, in this way, is spoiled by that of the furniture-maker. We must restrain the carver, the inlayer, the polisher, and the metal-worker, and encourage them to concentrate ornament, and not to use it to hide bad material and cheap construction. "Our country," says Mr. W. D. Caroe, "is weighted, especially in the cities, with numerous edifices, dedicated in kind to worship, but wholly unworthy of that service, which have ignorance and ill-taste written on every line of them—the worst buildings, as a church I believe, which have ever, in the world's history, been reared in the name of the first of the arts." What a tradesman's Lord is the adjective, "Art." "Art" pulpit in any style, in stone or wood, really for chosing. "Gothic" creel-moss, "Gothic" bottoms, "Gothic" embroideries, speckled daisies, garish ephephs, fleur-de-lis powderings, and lilies growing in gigantic cross-stitch; but compared to the great works of our forefathers as a barrel-organ to the king of instruments. At Truro, every accessory, down to the altar-plate, came from the same hand; and again at Holy Trinity, St. James-square, another master-mind guided his own work and also that of other artists and crafts-

ment, though the supervision should never pass from the architect himself. The author of the paper, who had tried to keep the architect's nose a little bit out of drains and taps and sanitary matters," thanked the meeting, as having been the principal of the subject, for the way in which his paper had been received. Architects who had studied the subject found it was so large that they could not particularise as much as they would. Drawings by Sir G. G. Scott, R.A., Mr. Burgess, Mr. James Braks, Messrs. Romaine-Walker and Tanner, Mr. E. H. S. Sells, Mr. J. H. Grace, Mr. E. L. C. and the late Augustus Pugin, were exhibited to the meeting; and the R.A.A. records its thanks to the authorities of the S.K. Museum and to many private persons for their assistance on this occasion.

ARCHITECTURE AT THE ROYAL ACADEMY. I.

The general effect of the scheme of hanging this year in the Architectural Gallery is a quantity bright and harmonious, without manifest an effort after the old method of grouping to give prominence to some individual centrepiece, possibly the work of a person of eminence, rather than because of the importance or intrinsic merit of the building requires it. On the other hand, prominent places are given in the present gathering to the productions of outsiders, adding, in doubt, to this preponderating effect of cheerfulness, largely due to the prevailing vogue just now of lightly tinted architects' drawings intended for exhibition, and thus insuring a touch of colour intermingled with the monochrome and pen-and-ink work. The absence of the heavy, old-fashioned building pictures, embellished with prancing horses and bearded females, is certainly a gain. That so many and such differing kinds of building, by various architects, should be shown in this gallery, all by one or two favourite water-colourists, certainly detracts from the interest of the exhibition, and the occasional lack of skill in the rendering of these examples of building, viewed as edifices, is as noticeable as the skill and capability of the artist.

The oldest Architect Academician, Mr. T. Graham Jackson, is not represented this year. Sir Aston Webb, R.A., shows two works, both unassumingly placed towards the ends of the main wall. The drawings are by Mr. Gascoigne. The first (1663) represents an interior of the Chelyze Chapel at Worksop and is well executed. This drawing is reproduced by us to-day, so that the merits of the severe simplicity of the design, marked, as it is, by good proportion, will at once be recognised as worthy of the best traditions of English school life. The second picture (1711) illustrates the Central Office of the Grand Trunk Railway of Canada, in Quebec street, showing the painted frieze by Mr. Frank Brangwyn, R.A., which extends round the apical rear part of this public hall with its panelled walls and handsome floor of lacinated, and the black-and-white marble pavement, the whole treatment being exceedingly refined and handsomely without pretentiousness. The closeness of the juxtaposition of the plan to fit the site is as stark as it is an essential feature of this noble building.

Mr. John Belcher, R.A., in conjunction with his partner, Mr. J. J. Jeays, send the extended facade of Whiteley's Park, Universal Emporium at Westbourne Park,

erected last year (1758). The same architects are also represented by the Royal School of Medicine, Henrietta-street, W., which is to be opened by the King this month. The dignified breadth of its stone-faced elevations marks it as a monumental addition to the architecture of the West End of the Metropolis. The elevational drawing (shown by No. 1515) is of a slightly-handled kind, faintly tinted, and in pale brown lines, with the detail faithfully expressed, though perhaps a bold a facade needed of a stronger drawing to impress one with a sense of the strength of the building itself, with its bold roof over the stone arch. The third drawing, shown by Messrs. Belcher and Jeays, is a very fine picture of work by Mr. George Murray, representing an interior of the Holy Trinity Church, Kingsway, with the ceiling intended to be the ceiling and vault of the apse. The organ-case helps to furnish what is at present a very bald place of worship, which can never be quite as this picture suggests (1603), with parts broken away to render it possible.

Merlen House, Blackheath (1593) is represented by a delightful water-colour, giving a graphic idea of the garden scheme adopted as a suitable environment to this suburban residence, worked out as a design in a popular rendering of the Renaissance simply handled by Messrs. John Belcher and J. J. Jeays.

Professor Reginald Blomfield, R.A., has for his most pictorial exhibit this year a drawing from the pen of Mr. Albert Berrington, which we give. It is a view of Mr. Athelstan Riley's country seat in Jersey, erected in granite, on the site of the Manor de la Trinité (1634). The work carried out here by Professor Blomfield includes practically the rebuilding of the old mansion house, with extensive additions, including a private chapel and a winter garden, harmoniously designed with becoming dignity in the French Renaissance manner, which favoured lofty roofs and little dormers. Wretham Hall, Norfolk, drawn by Professor Blomfield himself in pencil, is a large new mansion in a Georgian treatment of brick, square on plan in so far as the main portion is concerned, the kitchen wing ranging away to the right of the garden front seen in this ample perspective (1551). Surmounting the centre is a capacious balcony belvedere with a Classical turret in woodwork rising over the lead flat. A pedimented centrepiece enriches the facade overlooking the terrace, which has flat flagging at the edge, having handsomely-carved vases spaced at intervals. The quoins are rusticated, and the middle opening of the front has a curved-shaped architrave with dressings in stone. Lincoln Public Library (1555) supplies Professor Blomfield with his third exhibit, a general key view in the corner of his half-inch detail shows how the emphasis was put in the general elevation; but a plan of the building would have added to the interest of the subject, which is distinguished by the lofty, lead-covered dome, huddled in a French style of plain Renaissance, having panelled walling between the fenestration and vases in stone, to emphasise the angles of the pavilion.

Messrs. Sir Ernest George, R.A., and A. B. Yeates show only two comparatively unimportant subjects this year. These include a water-colour sketch of a wood-framed house carried out on a brick-arched base in British Guiana (1598), with a picturesque verandah and boarded walls. The middle portion runs up into a quasi tower, and on the top occurs an Oriental sort of turret, somewhat in keeping with its location and character. The second picture shows a moderately-sized

house, called "Woodside," Esher (1607), built for Mr. A. H. Moreing. It has a pedimented portico in stone on the main front, and a semicircular stone porch on the return side, so that it is not clear quite as to which is the real entrance for the visitors' use. The roofs are stone slated, and the chimneys are skilfully grouped. Sir Ernest George shows in the Water-Colour room a sketch of the Roman Theatre, Tingard, North Africa (875), with the seated auditorium, which much interested us.

Mr. Ernest Newton, R.A., is represented by three drawings hung close together on one splay of the gallery. Oldcastle, Dullington, Sussex (1623-1628) is a long, rambling, but charming house, with tile hanging, and marked by strong, unbroken horizontal lines, in keeping with the old work of the South Down countryside. The detail given of the stone-and-timber gable is delightfully rendered. The second house by Mr. Newton is an alteration work at Cheltenham to "Greenway" (1629), done in stone, with three gables quaintly grouped along the garden side. This drawing we also give to-day, and a plan illustrates the extent of the premises.

The principal building illustrated in this gallery is the National Museum of Wales, shown by Messrs. Dunbar, Smith, and Brower's excellent perspective and plans (1725). The design is familiar to our readers from our previous illustrations of it in 1910. The architectural merits of this building, and its national character, too, amply justify the central position accorded to the drawings at the end of the gallery.

Mr. John J. Burnet also obtains a prominent place here by with two capable diagrammatic perspectives (1722-1730) of the Grand Staircase of the British Museum Extension, which are now nearing completion. The soffits and ceilings are richly coloured, and the bronze lift-cages gave the colourist a chance of blending the parts in his pictorial suggestions; but in order to display the extent of the stairway parts had to be broken away, and the result is necessarily conventional and difficult to comprehend, even with the aid of the plans attached to one of the views. The breadth and dignity of Mr. Burnet's work is unquestioned, and must be seen to be appreciated.

Close below the centrepiece is an interior of the Council Chamber of the new County Hall, by Mr. Ralph Knott (1727). The ceiling, circular on plan, is flat, with deep coxes richly offered, and springing from the octagon formed by the canopied spaces where the windows occur above groups of monumental statuary. On the cardinal faces of the council chamber are recessed galleries with colonnaded fronts, having bronzed capitals on the red marble shafts, which give colour to the architecture. The well of the chamber is seated horseshoe-wise, with a big throne-like seat for the chairman facing the members. A blue hanging curtain along the rear range of seats supplies a further suggestion of colour, greatly helping the general effect.

Mr. Edwin L. Lutyens's chief exhibit this year will add another excellent building to the Metropolis and these headquarters of the Theosophical Society now being built in Tavistock-square will certainly possess distinctive and architectural character. The plan in the corner of the view (1558) shows two wings, or pavilions, with lofty roofs, in Upper Woburn-place, and flanking the central drive in way or outer quad leading to the entrance-archway approach of the Cour d'Honneur, to the right and left of which

are the greater halls. Two smaller ones flank the archway. This latter rises into a boldly-handled tower, topped by a circular gallery stage, supporting a dome. A segmental pediment with pilasters are employed as a mural treatment to the facade of this gateway tower, the lower part being rusticated. The water-colour undoubtedly does the design every justice, and adds greatly to the interest of a somewhat unusual subject, worked out in a very original way. Shops will help pay the rent along the Barton-street frontage. Mr. Lutyens has two other perspectives of the Art Gallery, Johannesburg (1553-1562), but it is not clear whether both pictures refer to the same building or not. If they do, the blocks must greatly differ. The treatment is plain in style after a French manner, the first drawing having a pedimented central block with pavilions right and left connected with the main building by curved wing walls. Italian tiles are employed for the roofings. The middle part in the second picture has a niched mural composition for statuary, and the angle piers of the wings are finished off with vases. There is a square ped in front, adding a sense of coolness and breadth.

A feature of the exhibition is contributed by the several detail drawings shown. The Manchester Library and Art Gallery Competition and the Marylebone Town Hall Competition furnish several big frames. Mr. Edwin Cooper has a first-rate elevation of his chosen design for the latter building as revised for execution. The drawing has not been accorded so good a position in the gallery as it deserves. Church work on this occasion is very strongly represented, including examples by Mr. Temple Moore, Mr. W. Tapper, Mr. W. D. Caroe, Mr. Fellowes Prynne, Professor Beresford Pite, Mr. Maurice B. Adams, Messrs. Greenaway and Newberry, also by Mr. John O. Scott.

BRICK ORNAMENT.—IV. CORNICES.

The cornice really forms the most important architectural member introduced in any building, whatever its nature may be. Given correct proportional design on general lines, even if windows and doors be perfectly plain, a good cornice, of correct proportions to the whole mass, at once gives a finish as the principal feature, aiding to form a more



FIG. 1.

complete, satisfactory, or perfect piece of architecture. Simple cornices may be formed for this class of structure, as shown by Figs. 1, 2, and 3, either in toned bricks or massed in different colours, with plain projecting courses, an architrave or necking-course being simply picked out in colour, without any projection. Fig. 4 shows an ordinary cornice in projecting courses, with a dentil course formed by the headers, and a necking-band, the whole worked in accurate English bond. The detail plan of angle shows a good method for obtaining continuity of coursing, and also a thorough tie-in on the angle. A more elaborate cornice in projection is illustrated by Fig. 5, with vertical bands which have the appearance of triglyphs, thus forming a panelled frieze. This method gives a considerable amount of ornamentation; but, as will be noticed, the frieze portion has to be built up with straight joints between the panel and triglyphs. The angle to same also

requires cutting as shown by the accompanying detail plan. Fig. 6 illustrates a different type of construction, which gives a good effect, and may be varied as shown by the separate sketches, Nos. 1, 2, and 3 respectively, a marked distinction being obtained by the introduction of either the whole brick

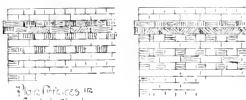


FIG. 2.

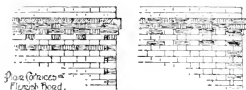


FIG. 3.

or different spacing between the dentils, the dentil-course itself being formed by bricks on edge, instead of projecting them the other way, as in ordinary coursing. The latter method suits some classes of structure; but when used at all, it is too often in an inappropriate position, producing a coarse effect. The brick-on-edge method shown

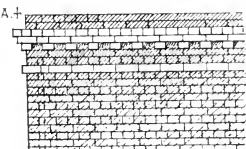


FIG. 4.

gives a far better-shaped dentil when used singly, with single-brick spacing between. (See later figure, No. 9.) When used double, as illustrated above, the vertical joint aids in breaking up uniformity to a greater extent. The space between can be filled in either with double or treble bricks, or as shown in the first example—with a whole 9in.

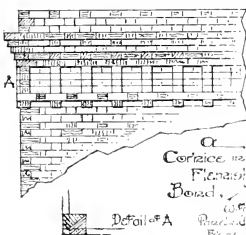


FIG. 5.

brick, which gives variety by throwing the dentils into stronger relief—a point often desirable when at some height. A heavier cornice still, in which the dentils have to be kept correspondingly heavier also, and are worked in a double course, is shown by Fig. 7. The effect of a large amount of moulding to a cornice may be well enough conveyed, with very little extra expense

beyond plain over-sailing courses, with a couple of the plainest moulded bricks, as illustrated by Fig. 8, the corona being formed with a simple splayed brick, whilst

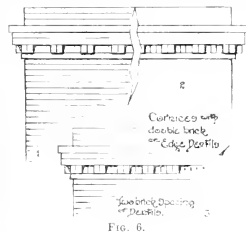


FIG. 6.

the ovolo course beneath the dentils is formed in similar fashion with bull-nosed or quarter-round bricks. Such a cornice, at some height from the ground, has much the

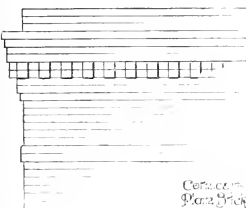


FIG. 7.

effect of an elaborately-moulded piece of work, actual details themselves being invariably lost from a distance; therefore they are not appreciably missed. For more effective and refined work, to be placed

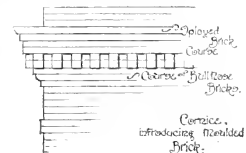


FIG. 8.

nearer the eye and ground-level, a couple of courses of moulded brick introduced as shown in Fig. 9 are quite satisfactory without utilising all the stock-pattern mouldings

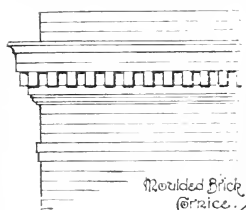


FIG. 9.

usually and generally accepted as being essential to the cornice. Fig. 10, again, shows a heavier type, suitable for a con-

considerably heaped down the ground, formed by plain projection. The difficulty with brick cornice of great projection are the angles. The plan is shown in the latter figure.

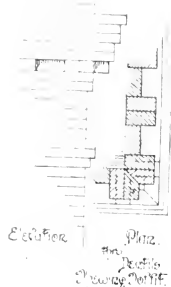


FIG. 10.

shows a method of forming same; but the bricks are preferably still further secured with galvanised iron ties. A better method of construction is illustrated by the succeeding figures. No. 11, although it involves more

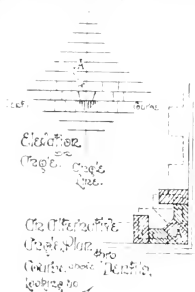


FIG. 11.

work, the projecting and two side bricks over the angle being cut and rubbed similar to other bricks. Fig. 12 is a cornice of some of the same type, of heavy appearance.

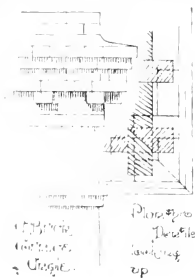


FIG. 12.

Whilst shown with single brick dentils, it could prove much stronger constructionally with the double brick dentils, as illustrated in Figs. 7 and 8. A brick cornice of any

description, more especially those having a good projection, are preferably finished with a weathered course of cement on top, as

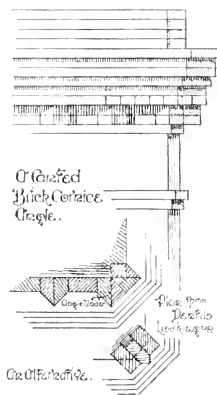


FIG. 13.

shown by this figure. The cement may be coloured with ochre, brickdust, etc., to match the brickwork, and is then practically unnoticeable. This, of course, affords a con-

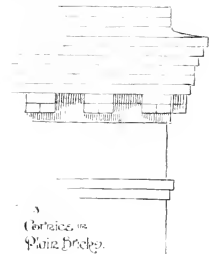


FIG. 14.

siderable safeguard against decay in the jointing, which might prove dangerous if left unattended or unnoticed. Fig. 15 illustrates a canted angle with splayed bricks backed

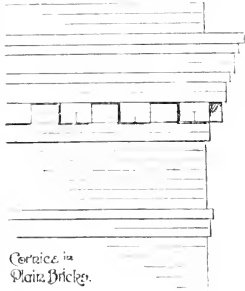


FIG. 15.

together, forming pointed dentils, which produces another variation from the customary methods. Figs. 14 and 15 are also somewhat

similar types, but of a still heavier character, such as might be applied to large buildings of considerable height and mass. The designs illustrated in Figs. 16 and 17 are of

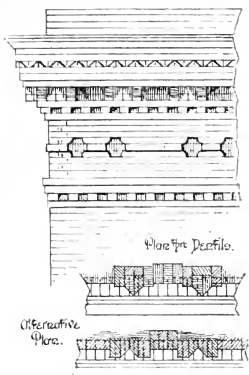


FIG. 16.

a somewhat similar type, but much more elaborated as regards ornamental effect. At first glance they might be taken for very costly cornices, involving a large amount of cutting. Such is not the case, however. The

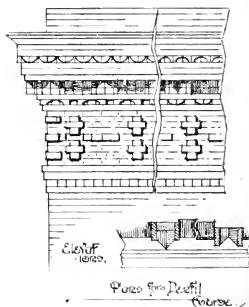


FIG. 17.

two courses at top forming the corona can be constructed with the two types of splayed brick which are in common use, and obtainable ready made almost anywhere. The pointed dentils are also formed with same,

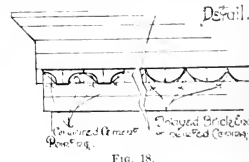


FIG. 18.

whilst the ornament above the dentil-course can be put in with the triangular-pointed coping bricks used for 4 in. walling—bull-nosed, half-round coping bricks, or the cavetto moulded brick—the sunk panels shown in the frieze to Fig. 16 being formed as well with the ends of bull-nosed bricks.

Fig. 17 also shows the cavetto introduced as a further enrichment beneath the dentils. It will be seen from the plan of the dentil course to this figure that half-bricks or queen-closers are used at the sides of the sply blocks, a method whereby greater refinement may be obtained with work of this character. The queen-closer is an exceedingly useful brick in this capacity, and may often be introduced in various positions in ornamental work with the greatest improvement. Fig. 18, a detail of the construction, shows how such ornaments may be readily formed, pointing with coloured cement on face after the joint has been well raked out.

W. G. KERRY, Architect.
(To be continued.)

THE BRITISH SCHOOL IN ROME.

A White-paper has just been published from H.M. Stationery Office giving the draft charter of the British School at Rome about to be established by the Royal Academy and the Royal Institute of British Architects in conjunction with the Exhibition Commissioners of 1911 and the Royal Society of British Sculptors. The objects of the school are defined in the charter:

- (a) The promotion of the study of Archaeology, History and Letters, Architecture, Painting, Sculpture, and the Allied Arts by British subjects.
- (b) The establishment and maintenance in Rome of a Hostel for British students of Art, Archaeology, History, and Letters.
- (c) The establishment and maintenance of Studies and other buildings for the purposes of the school and their use by the students and other persons attending the school.
- (d) The continuance of the archaeological and other researches and publications which have hitherto been carried on and issued by the old British School at Rome, and the carrying on and issuing of such other studies and researches and publications as may from time to time be determined upon.
- (e) The formation and maintenance in Rome of a General Library of Art, Archaeology, History, and Letters.
- (f) The awarding of Scholarships, Exhibitions, Bursaries, and other forms of assistance to British Students of Art, Archaeology, History, or Letters.
- (g) All such things as shall be incidental to or tend to the promotion of any of the objects aforesaid.

The Council will be constituted as follows:

- (a) Two Members appointed by the Sovereign under the Royal Sign Manual.
- (b) Four by the Commissioners for the Exhibition of 1911.
- (c) One by the Trustees of the British Museum.
- (d) Four by the Royal Academy of Arts, of whom one will be an Architect, two will be Painters, and one will be a Sculptor.
- (e) Two by the Royal Institute of British Architects, both of whom will be Architects.
- (f) Two by the Royal Society of British Sculptors, both of whom will be Sculptors.
- (g) Two by the Royal Scottish Academy.
- (h) Two by the Royal Hibernian Academy.
- (i) One by the Prime Minister for the time being.
- (j) One by the President of the Board of Education for the time being.

There will be four Faculties in the first instance—namely, (a) Archaeology, History and Letters; (b) Architecture; (c) Painting; (d) Sculpture.

The names of the first members of the Faculty of Architecture are: Messrs. Reginald Blomfield, M.A., A.R.A., F.R.I.B.A.; William Richard Lethaby, F.R.I.B.A.; Edwin Landseer Lutyens, F.R.I.B.A.; Sir Robert Stodart Lorimer, A.R.S.A., F.R.I.B.A.; Ernest Newton, A.R.A., F.R.I.B.A.; Charles Herbert Reilly, A.R.I.B.A.; John William Simpson, F.R.I.B.A.; Leonard Eloyssis Scott Stokes, F.R.I.B.A.; and Sir Aston Webb, C.B., C.O., D.A., F.R.I.B.A.

The Commune of Rome have presented for the purposes of the School the site of the pavilion used for the British Section of Fine Arts in the International Exhibition held at Rome last year, and Colonel Charlton Humphreys has presented the buildings on the site.

At a meeting of the Welsh National Museum Council at Cardiff on Saturday, it was announced that the Treasury had decided to increase the maintenance grant of the museum from £2,000 to £2,000, and, under certain conditions, would increase the grant in aid of the building, the foundation-stone of which will, it is expected, be laid by the King next July.

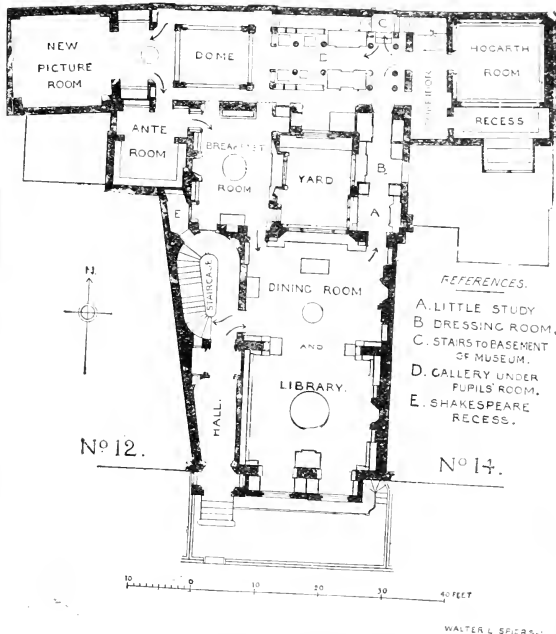
LINCOLN'S INN FIELDS, L.C.C. SURVEY OF LONDON.

[WITH ILLUSTRATIONS.]

There are few spots in the whole of the Metropolis of more historic interest or civic importance than the open space which forms the greatest square in London, known as Lincoln's Inn Fields, though, by its curtailed extent and circumscribed rectilinear shape, their present environments bear very little resemblance to the once famous old trinity of fields from whence the long-familiar name was derived. It is over 300 years ago since

Grange, the third and last designed "Fickett's" reached over the Strand street and Searle street down to the Ship Gate, abutting on to the Strand, which then was a road well above the swamps next the river. The "Purse Field" included Kingsway from Kelley street to the Holborn Restaurant, and extended east to half-way over the present square, about where Sir John Soane's museum stands, a rectangular ditch which came between the divisional line between "the Cup Field," reaching up to Great Trowl-tille.

The topographical sketch which contains



GROUND FLOOR, SIR JOHN SOANE'S MUSEUM.
LINCOLN'S INN FIELDS. 1794.

"Purse Field" adjoined "Cup Field," with Fickett's Field attached to the latter. Their several figurements may be seen represented in detail by the capital map of the property which Mr. W. E. Riley, the Superintending Architect to the London County Council, has had prepared to illustrate the "Survey of London," just published. The map shows Lincoln's Inn Fields as they stood about 1592, in the reign of James I. At that period they were bounded on the west by a common open ditch or sewer which crossed the "Hobbourne" about the point where Newton street to-day turns out of High Holborn, and then this culvert passed close to where the "Pighittes" stood, and wended its odorous way towards the Thames by the purlieus of Clement's Inn, the duct then going through where the Courts of Justice now rise in their lordly Gothic of Victorian date.

In the north, the boundary of these extensive fields was furnished by "Whetstone Park," known to-day only as an obscure alley south of Holborn. The gardens of Lincoln's Inn up to Chancery-lane set their limit on the eastern side, while on the southern extremity, passing "Lincoln's Inn

this map forms the third volume of the L.C.C. "Survey of London," and it is devoted to Lincoln's Inn Fields as part of the ancient parish of St. Giles-in-the-Fields. The work, with ninety-eight plates, has been produced under the general editorship of Sir Laurence Gomme, the author of "The Making of London," and Mr. Philip Norman, F.S.A., the illustrations and architectural descriptions being supervised by Mr. W. E. Riley when he did not personally contribute them. The committee which has this survey work in hand is very large, and no doubt, in its way, is influential enough, some of the members being experts; but Mr. W. W. Braines, B.A., in charge of the Library and Records Department of the L.C.C., has had more to do with the details of the scheme, probably than anyone, and the editor acknowledges Mr. Braines' unwearied industry in recovering the true history of one of London's most interesting sites. In order to deal comprehensively with the whole of Lincoln's Inn Fields, the ancient parochial boundary up to 1900 has been adhered to, though really, under the Local Government Act of 1899, the parish line on the southern



REAR ROOM, GROUND FLOOR, 35, LINCOLN'S INN FIELDS.

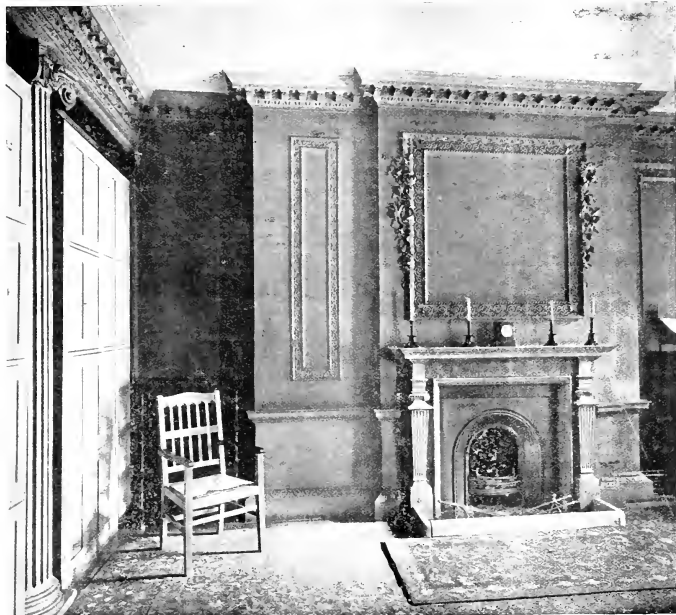
SIR ROBERT TAYLOR, Architect.

has been altered. The get-up of the book is admirable, and the programme of work well suited to insure a permanent value to the scheme. The footnotes and various marginal references add immensely to the information thus got together, with quotations from old deeds, engravings, and contemporary writings, illustrating the various developments which have gone on, and many of several maps and plans, such as that of and Lewis's diagram of 1682, wherein the Lincoln's Inn Fields is depicted with the old buildings off Chancery lane, next the gardens, up as far as Great Turnstile. Cromwell's Woodcock's design for laying out the Lincoln's Inn Fields is reproduced. The programme of work for church for musical services is modelled on the square, showing what is to be done by Sir Christopher Wren; and in 1712 the idea of a church, suggested by popular opinion, induced Colin Campbell to the desire of "persons of taste" to prepare drawings for a competition. The drawings conform to the same plan, and the amounts, in the square. Sir Thomas Barry in 1842 drew out plans for the new Courts of Justice, in the centre of the square; but, fortunately, all these have come to nothing.

The old facade of the building still standing include Inigo Jones's Lindsey House, which, we are glad to see, the London County Council have insured shall be retained intact. Nos. 57 and 58 possess the original facade, and it well compares with that of Lindsey House. The central entrance to it was improved by Sir John Soane in 1793, when he added the semicircular porch, with Roman Doric coupled columns, the premises at that time being divided. It must be added that Soane's portico was cleverly managed. No. 65 (by Thomas Leverton, the architect) was built in 1772, and its stone front has many points of merit in which Bonomi, Leverton's assistant, may have had a hand. Next to it, and flanking Great Queen-street, stands New Castle House (66 and 67), which was designed by a Dutchman, one Captain William Wande, as a town residence, with a log hall in the middle and rooms on each side. It remained unfinished till 1689, when Lord Powis was outlaid. Sir Christopher Wren then made a survey of the premises, with a view to adaptation as an official residence for the Keepers of the Great Seal, and he altered the building at a cost of £1,000. The Dukes of Newcastle became possessed of the house in 1745. Subsequently it was divided into two by Thomas Leverton.

give a plan, occupies the site of a residence which went by the name of "The Pine Apples"—that is to say, before the houses in Lincoln's Inn Fields were numbered. In a deed dated 1737 it was described as a "messuage situate in the North Row, called Holborn Row or Turnstile Row, in the north part of Cup field in St. Giles." The party-wall between Nos. 12 and 13 follows the former boundary line between Cup Field and Purse Field, at that time determined by a sewer ditch, and this ancient division of the two properties accounts for the peculiar angle at which this wall is set, as shown by the plan. Soane built No. 12 in 1792, and occupied the premises until he erected the larger house, No. 18, to which he removed in 1812. He still retained his old office at the rear of No. 12, and this office occupied the site now devoted to the "New Gallery," which was erected in 1890 from the design of James W. Wild, who was curator of the museum from 1878 to 1892. The back premises of No. 13 are very much wider than in the front, and Sir John Soane certainly displayed a considerable ingenuity in utilising the extra area thus obtained, and he cleverly masked the deviation from the rectangular which this wall necessitated. He also laid out the plan of his museum with

Sir John Soane's museum, of which we



BACK ROOM ON GROUND FLOOR, 45, LINCOLN'S INN FIELDS. A.D. 1750.

excellent taste, and contrived the lighting of the basement very adroitly. Subsequently he rebuilt No. 14, and, having acquired the site of some old stables at the rear, he further extended the museum premises as we see them. He obtained an Act of Parliament in 1833 for the perpetuation of his museum, and on his death, in 1837, his trustees, named therein, were appointed to carry out the trust. The plan, which we have reproduced, was prepared by Mr. Walter L. Spiers, A.R.I.B.A., the present curator, who succeeded George H. Birch, F.S.A. Birch held the post from 1894 till 1904. Wyatt Papworth only lived about a year after he was elected curator in 1893, and James W. Willd preceded him, as already mentioned. The more famous Joseph Bonomi was curator from 1861 till 1878, the first to hold the office being George Bailey (1837 to 1860). These particulars have a special interest in connection with the museum, and we were rather surprised that "the survey" under notice, which gives so much detailed information in many ways, did not allude to the new part of the premises built by Willd, consequently we supply the information here.

No. 35, Lincoln's Inn Fields occupies a plot on which the original buildings had to be finished by the Feast of St. John the Baptist, 1650, and the house was in the same deed described to be "proportionable double buildings or dwelling-houses" in Portugal-row. The rate-books no longer refer to them after 1755, by which time they had got into so bad a condition that one remained empty for fifteen years. The rebuilding, from the plans of Sir Robert Taylor, architect, was effected about this time, and some authorities give 1754 as the actual date. No. 35 has a remarkably good plan. The party-wall shows that the intention was to provide two dwellings of approximately the same area, but at the same time to obtain a central

feature between the two, in order that the whole façade might form one composition. The existing exterior gives no idea as to how this was realised. The chief interest of the house is in the interior, and specially the ironwork on the particularly large staircase, which is lighted from a lantern in the roof. The steps are in a continuous flight of thirty-six treads, with the result of undue fatigue when going up and dangerous risks when coming down. The wrought-iron balustrade is exceptionally good, and each baluster is made to fit its particular place. They are all of the lyre pattern. On the first floor there is a beautifully executed panel of scrolls and leaves, as herewith illustrated, and extending part of the way round the well hole of the stairs. The writer in "The Survey" suggests that in design this work is reminiscent of Jean Tijou's work of the late 17th and early 18th centuries. The rooms in 35, Lincoln's Inn Fields are also very interesting, and we have chosen the view given of the rear room, which contains an "ante." It will be seen that Sir Robert Taylor, in designing it, introduced the correct Roman and Palladian form of volute, with cushion at the side. This form of capital does not lend itself to portions of columns or pilasters, and suffers especially in internal angles, as here so very evident.

No. 45, Lincoln's Inn Fields contains a considerable amount of architectural embellishment, but its plain brick façade in the western end of Portugal-row is not very remarkable. The staircase possesses an attractive and ornamental wrought-iron balustrade. The ground-floor rooms are marked by refined detail. We give a view of the rear apartment, which has an alcove with Ionic columns and pilasters supporting an enriched entablature, the cornice ranging with that round the room. The chimney-piece looks as if it belonged to the house, and

is refined and suitable to the position it so well occupies.

We have chosen these interior views because anyone may see the exterior facades in Lincoln's Inn, and most are familiar enough to many of our readers, while very few people indeed have had the chance of seeing their internal features. To all architectural students and lovers of historic London this survey cannot fail to be most attractive.

SOME PRINCIPLES IN THE VALUATION OF LAND VALUES.

By G. TAYLOR LOBAN, F.S.I.

The property dealer does not work with tables the prices he will give for securities. He has bought them a hundred times before, and knows to a pound what any particular one may be expected to yield by way of return on capital outlay. He knows, too, the exact moment at which it is worth his while to buy or sell—whether in relation to other openings in the same market or to the markets in other forms of security. The prices that he establishes become instantly the market prices of the day, and he establishes them out of his knowledge and experience, and not by computation from the tables. So far, then, as value is established by the custom of dealing, tables have nothing to do with it. It is when a number of disconnected results are to be compared, and when the conclusions to be drawn from them are to be ascertained, that the necessity of some standard of comparison arises. It rarely happens that any two transactions are alike in every particular. Some means are needed by which they may be cast into similar form, so that common features may

* Read at the ordinary general meeting of the Surveyors' Institution, Monday, April 29, 1912.

property in the market. An unexpired lease of thirteen years bought at eight years' purchase may be regarded as bought upon the 8 per cent. table in the usual way, or it may be regarded as bought on the 6 per cent. table, reinvestments of sinking fund to be at 3 per cent. Whichever way it is regarded makes no difference to the actual market price. The sum paid will be the same in either case, for it depends on the market, and not on tables. At least simplicity is gained by classifying the transaction under one rate in the usual way. It cannot be too strongly urged or too closely realised that the rates per cent. and the years' purchase are simply convenient categories or pigeon-holes into which results may be thrust for subsequent reference, and that when they are used for valuing they represent an attempt to reconstruct the conditions of the market by comparison of convenient standards. Apart from the continued saturation of the market, there is no virtue in them. In practice, and for the sake of convenience, however, valuation is very commonly effected by the machinery of the tables, and it becomes of interest to observe the functions of each of the factors that go to make up such a valuation. The two factors are the rent, the deductions, and the years' purchase or multiplier. The legal definition of rent was well known in the days of the examinations, and has been well forgotten since. The valuation definition of rent is that it is an income arising by the letting of property; it is gross if the maintenance charges on the property are to be met out of it, it is net if it is free of these charges. Frequently, as in the case of a workman's house, it is an aggregate of gross rent proper and of rates, taxes, and other charges. Rent depends partly upon accommodation, and bears a certain ratio to it. An increase of accommodation up to a certain point will mean an increase of rent. The limit is reached when the accommodation goes beyond the means or requirements of the class for which it is intended, for which alone it can be valued. From this point onwards the rent is to increase with accommodation. It has to be remembered that a rent must be obtained out of means which the property itself is an instrument to provide. The amount of rent that a property can stand still depend less on the extent of the property than on the extent of the profitable use to which it can be put.

Cases of big premises at low rents and small profits at high rents are common to everyone. Competition also tends to raise rents, but only to this limit imposed by the productiveness of the property. Rent is subject to losses by empires and bad debts. Even a net rent will, therefore, require some further reduction by way of what may be called contingency provision before it can be regarded as a secured income. Now, while expenditure on rates, taxes, and repairs can be exactly forecast and allowed for, allowance for voids and losses is a matter of experience and estimate. A very close estimate of the proper proportion of the total rent to be allowed is sometimes made by observing in the property accounts the actual loss per cent. under those heads during a few past years. The figure by which the net income is multiplied (commonly called the years' purchase) depends upon security. It also depends on length of term, but not as a matter of judgment. Whatever tends to add security to the income tends also to raise the years' purchase. Anything that detracts from the security of the income lowers the years' purchase. There are some qualities which affect both rent and security. Greater desirability tends to throw up rent; but when rent cannot be increased, it reacts to improve security. As years' purchase depends on security of income, any alteration in the contingency allowance for deductions will affect it. A lessening of the contingency deduction lowers the security and the years' purchase, and an increase of the deduction raises them. The process of applying this method of valuation is much simplified if any particular quality of the property is allowed to influence the right factor. The commonest mistake of the inexperienced is to make it modify the

wrong factor. The amount of accommodation affects primarily, not the security, but the rent. Such also are the influences of the proportion of rates and taxes, the desirability, the economy of planning, water supply and drainage, and the general competition for the class of property. On the other hand, there are circumstances which operate mainly to affect the security and the years' purchase. In secure property it may be said that the condition of the premises, their convenience and desirability when the rent limit has been reached, their newness and freedom from decay, their general lettability, the circumstance of an improving neighbourhood, all will improve the chances of the maintenance of the income, and so favourably affect the security. There are, however, times when these advantages do find expression in terms of increased rent. In such cases the advantage of extra security disappears, and the value must guard against taking account of the same thing twice over. To every class of security there is an appropriate degree of risk, which is conveniently represented by an appropriate percentage of income. Such percentages naturally progress by steps, as from 3½ to 4, or 5 to 6; but the desirability and security of the investment may vary much more gradually within these figures. It is inconvenient to say, even if a value could presume to be as precise, that an investment is secure enough to be worth 5½ per cent., and then to calculate at that rate. Inwoods would run to many volumes to supply the tables alone. But a security which stands in the valuer's estimation somewhere between two recognised percentages—as, for instance, between 5½ and 6—may be improved or lowered by the increase of the contingency provision until it may fairly be valued on the basis of the lower rate. This is a principle that is quite frequently overlooked. I once had to discuss the valuation of some fifty freehold cottages. After a careful calculation of probable outgoings and losses by voids, it appeared that an allowance of 35 per cent. of the gross income was sufficient to cover them—a deduction which would leave the net income at 65 per cent. of the gross. In my own view of the class of property, I considered it right, with such an allowance, to capitalise at fourteen years' purchase, obtaining a figure of, say, £4,200. The valuer opposed to me protested that my deductions were too low, and produced his client's accounts for ten years to show that the average net income derived from the property was only £210 per annum, as against my £300, the £210 corresponding to the allowance of 55 per cent. of voids, losses of rental, and collection expenses. I was prepared to adopt this figure; but I had to point out that in making such an allowance from the gross income as would practically insure the net income on a ten years' average test, I must regard this lower income as substantially secured and capitalised at 5 per cent. On working out the figures, the result was as before—the point seemed, however, a novel one, and did not for some time make the appeal I hoped. The basis of the position, I need hardly say, was this: If a man capitalises an income derived from poor-class property on a table appropriate to that class, it is assumed that he regards that property as held with all the risks, trouble, and disadvantages attaching to it. That view is the sole justification for the expectation of a high return on capital invested. If by whittling down the income by allowances for this and deductions for that, a point is reached at which, by no mischance at all, can the net income fail, and no effort at all is necessary to obtain the income, then it should be treated as secured accordingly. The rate proper to a perfectly secure investment has been the subject of some ingenious calculations. By taking the total amount of capital invested over a very wide range of securities—mines, real estate, railways, industrial ventures, Government stock, and other forms of investment, and by comparing with this total the total yield in revenue of all these securities together, it has been found that the resulting average rate per cent. was about 4. Among the securities considered there were included investments paying dividends from 200 per

cent down to nothing at all, and the resulting average was 4. At what a rate, if you estimate, then, or at the time to come, I put it, as a datum rate for very secure investments, and to regard the adoption of a higher rate of return by the market as an indication of imperfect security, while the adoption of a lower rate would signify full security, together with some other guide to determine business. An interesting example of the relation of rent and security as factors in valuation is furnished by a consideration of the level of duties under the Finance Act 1894 to 1910. It will be recognised that an important part of the process of valuation is the determination of the amount of deductions necessary to arrive at income from rent. These deductions usually consist of regular payments made periodically, as rates and taxes and insurance, or of payments made irregularly at uncertain intervals, but allowed for at a certain and definite rate as reparations. In all such cases the deductions are made from the gross annual produce of the property, and their magnitude, so long as it lies within reasonable limits, tends to reduce the income, and does not affect the security and the years' purchase. There are, however, other deductions equally relevant in incidence, but very uncertain in point of amount and time, and of these the taxes to be levied under the authority of recent legislation are typical. So far as these are calculable in their amount and the time of their happening, they will no doubt be allowed for by their annual equivalents as charges against the income derived from the property. But, however, the amount and time of incidence are so determinable, they must be regarded as diminishing the security for the continuance of the level of income, and to that extent they may be expected to reduce the years' purchase. The market in such cases gradually accommodates the years' purchase to the new conditions, and this is what may be expected to happen. Few valuations can be found who would regard a valuation at 14 years' purchase as applicable. Many hold it impossible to value correctly within 5 per cent. The reason is obvious. Value is a thing continually fluctuating. On the one hand, it depends on long-continued and gradually operating stresses of a political, social, or commercial nature. On the other hand, it is dependent on capricious and fickle influences that vary from day to day, fashion, some fortunate regard to the market, and some of the latter variety, among one can only guess how, cannot be estimated or allowed for in relation to any individual result. No single instance of a particular price should ever be quoted as an indication of a market. The real indication, as everyone here knows well, is obtained by multiplying the number of transactions observed. Casual variability has then the opportunity to exert its influence in only few transactions that extend over considerable period of time, and include a considerable variety of circumstances, that conclusions may be drawn which will safely indicate the trend or position of the market. The essence of valuation—and I recognise that I am uttering a commonplace in comparison. To place a property in the company of its likes, and then to regard its individual disposition in relation to them, is the practical effort of every valuer. Usually the process presents only the ordinary difficulties of selection of the genus, and the further difficulties of the estimation of the special qualities or defects in that genus. There are, however, many cases, which, as they stand, fit in no category where the properties must be reduced to a common denominator with the view of finding, if possible, proper categories for the comparison of these. Such are institutions, monuments, great works, and factories. The great majority of the cases with which the valuer is concerned relate to land and buildings in various combinations. It thus becomes of very great importance correctly to appreciate the nature of the component parts and the relation of these one to another. I propose, therefore, to put forward for consideration some sort of ana-

of the relations of these values. The movement of the value of land is one of the most regular and gradual. Commencing at a practically negligible prairie value, it proceeds by imperceptible gradations through a value as common or waste land, woodlands, to a value as agricultural land, again increasing to an accommodation value for a big building value, and so on, in certain stages, to a high building value. Subject to a consideration which will be introduced later on, the history may be regarded as a continuous rise.

So far the simple case of bare land has been illustrated. Now consider the effect of development upon this same value. Attention must, however, first be drawn to two important principles. The first of them is, I believe, in direct contradiction of a very widely held view. It may be stated shortly that the value of a piece of land and of the building erected upon it is not necessarily or generally the sum of the value of the land and the value of the buildings taken separately. The ordinary opinion forms the foundation of much of the practice of the street that of itself it is fallacious. An example will illustrate. A piece of land capable of development if building is worth £10 per annum, and being uncovered may be valued at £200 in fee. This is the value of the freeholder's interest. A lessee takes it for a long term of years and erects upon it a building at an ordinary market cost of £500 with a view to realising on completion of the building. The building being completed, he can sell, and can obtain £250 for his lease; the extra £50 being paid by a purchaser who escapes the trouble and risk attendant upon building speculation. At the same time the freeholder is able to sell his freehold interest for twenty-five years at five per cent, or £250. The value of lease and freehold together is thus £500. The value of the land alone is £200. The value of the building as measured by its cost is £500, and the sum of these figures is £700, or £100 less than the real value of the property. I anticipate a possible objection, by saying that the man who organises the building transaction may expect to get something more than the mere cost to him of something which will be over and above the payment to the builder and architect. The duty to make a profit forms the basis of all trading, and without reasonable profit no man is willing to work. The explanation appears to be that every building erected on its site represents the cost of not only a building, but also of the land, and of the building, and of a certain amount of knowledge, industry, enterprise, and risk. In addition, these last have their economic value, and, in the instance quoted, that value is represented by £100. They are, as will be seen, really attributable to the person who unites the building with the land, though the ground landlord is the first to find that in some manner or manner a substantial proportion of their value reaches his own pocket. This first principle is, however, of wider application, and before I leave it I must, with permission, offer another and very different illustration. Most valuers are familiar with the singular difference between prices obtained in building estates and when they are sold prior to the building development, or, in smaller units after it. This difference between wholesale and retail price, to what is attributable? Let me ask this question. Has anyone ever considered a newly formed road of newly built villa residences, and recalled the condition of the sites of the property when a few years before they were portions of the land as a frontage road? He considered the extraordinary difficulty of getting one of the individual owners to have encountered had he ventured on the business of developing his own plot in the first place, and his difficulty in obtaining reasonable terms from the big original owner, or, indeed, any terms at all; his expense in procuring a cess from the sewerage board; his trouble about the sewerage; his plot; his connection with the local authority; his dealings with other similarly situated owners; the difficulty of getting the hope of the future of the estate; the necessity, the necessity, the necessity, and

taxations; the final resulting want of method of harmony; and more than all, his inability to see, before embarking on the enterprise, whether it would ultimately lead him. Now the function of the speculator is to save all this to the building owner. His function is to endeavour to gauge the popular demand for building plots, and to risk his capital on the faith of his ability to meet it. For this risk, for the loss of interim interest on his money, and for the service of his time and brains he expects (and rightly) to be paid. His enterprise immensely simplifies the task of the building owner, to whom he presents (laying them exposed before him, as it were) the completed articles, for him to choose from at his pleasure. For so great a convenience the building owner will pay something over and above the value of the land and of the expenditure of money put into it—something which is the speculator's return on his enterprise. This something it is that constitutes the difference between the values of land taken wholesale and retail. And it is this something that the speculator has learned from previous transactions that he may safely go on with his scheme, and that the results will reimburse him all expenditure. But the reimbursement of expenditure alone is insufficient. He is entitled to a profit on what is a venture with considerable attendant risk. And his retail price must cover his wholesale price, a margin large enough to include both expense and profit. In normal circumstances it must also include interest on his capital expenditure over a portion of the time of development. Unless this happened in every normal case no speculator would continue to operate. Thus the amount of the difference is a measurable quantity. But now a caution to the observer. The element of uncertainty increment creeps into the speculation at once. No sooner has one owner purchased and built than others are attracted in a degree increasing with the amount of development. The second corner is drawn, not entirely by the facilities placed at his disposal, but also by the fact that a predecessor has ventured and succeeded in balancing. And he goes on so. So that in increasing measure the building owners may help to create or to maintain the values of the neighbouring plots or to retard the diminutions in value that might be taking place. At any time, and in any special case, the proportions of value attributable to either of these influences can be gauged only by considerable knowledge, but distasteful balancing, and by sympathetic insight into the conditions. The second principle commended to consideration is this: that the existence of a building on land, or of a restrictive covenant, tends to arrest the natural increase in the value of the land. One may appropriate a convenient term from another branch of science, and say that the building or the value is damped by such a building or covenant. It is to be presumed that the building erected at any moment on a piece of land will represent the best and most profitable use that can be made of the land. But with the improvement in methods of construction, with changing conceptions of convenient building, with the removal of legal restrictions, it is to be presumed that the majority of structures that ten years after they are built they are not of the latest, most profitable type. In other words, ten years or so after a building is erected there are even better uses to which the site of it might be put; the land is not used quite to its best advantage. So long, of course, as there is any substantial value in the building it would not pay to correct this. An owner cannot afford every ten or twenty years to scrap his property because of some slightly improved method of construction or development. So the land remains for the greater part of the life of the building certainly increasing in value but increasing less

rapidly than if it were free and uncovered. The effect of a building covenant is much the same. A lessee may have a valuable plot of land covered by quite inadequate buildings; buildings appropriate, perhaps, to the very different conditions that obtained when they were erected, but entirely inadequate to the modern possibilities of the site. It may be that both lesser and lesser know this. But the lessor cannot enter to make the change, and the lessee does not find it will pay him to do so, in view of an ever-shortening term of holding. In the meantime the covenants of the lease compel the maintenance of a particular class of buildings on land which has become far too valuable for them. In this case also the increase in value is damped or retarded by the circumstances.

In this connection it is necessary to consider the life history of the structure. Its greatest value qua structure is at or somewhere near its erection. For two or three years after completion it may slightly increase in value, as it consolidates and dries out and becomes more comfortably habitable. The process of deterioration then begins. It would be interesting to determine at what point in its lifetime a building has depreciated in value by one-half. Interesting, but almost impossible, as the process of depreciation is highly complex. There is the actual deterioration of the materials and workmanship, a process quite slow at first, but accelerating with the age of the fabric. There is the obsolescence of the architectural design as the advance of applied science and artistic taste suggest new treatments, or as legislation for the general advantage imposes or removes restrictive conditions. And there is the change that comes of growing unfitness to the environment. Obsolescence and unfitness proceed side by side with structural decay, though no doubt at a different rate of progress. It is unfortunate that in the nature of things anything like quantitative comparisons are impossible. The moment at which half-value is reached, or, indeed, any other proportion of value, is a matter of pure speculation. There is no means of measuring such a thing. The only stress of certainty as to the moment of death. The natural life of a building may be taken to have ended when it is so out of harmony with its surroundings that it will not let, or when the law steps in and condemns it.

To focus discussion I may perhaps be permitted to summarise the principles which I offer for consideration:

1. The tendency to exaggerate the importance of the tables in the practice of valuation, and in the teaching of that practice the place of the tables should be more subordinate.

2. Values are established by the operations of a comparatively small number of dealers, among whom experience has taken the place of tables.

3. Market value is a general deduction from a number of varied transactions, and individual results may be misleading.

4. Valuation is essentially effected by comparison, first for resemblances to establish the class, then for distinctions to differentiate in that class.

5. It is more convenient to discuss values in terms of rent and years' purchase than by reference to opinions on the fabric.

6. The use of devices such as the special contingency deduction, whereby the valuer may correct errors due to the necessary use of exact rates per cent. on years' purchase is legitimate.

7. There is a degree of risk appropriate to every rate of rent and so the risk that rate is adopted it is not permissible to reduce the risk by excessive allowances.

8. The value of land and buildings in combination is not necessarily the sum of the values of the component parts taken separately. The difference is partly attributable to the enterprise of the person who combines them.

9. The difference between the value of land, considered as wholesale, and its value considered as retail, is the economic return to the person whose enterprise furnishes the convenience of the small parcel.

10. The obligation to maintain buildings, whether it arises from covenant or considera-

tions of economy, damps the rise in value of the site.

11. It is possible for a rising market to counterbalance the effect of a deterioration in fabric or of a diminution of a leasehold term, and for a falling market to counterbalance the effect of a physical improvement in the property.

THE SOCIETY OF ARCHITECTS' DINNER

The twenty-eighth annual dinner of the Society of Architects was held on Friday night at the King's Hall, Holborn Restaurant, and was well attended. The President, Mr. George E. Boud, J.P., of Rochester, occupied the chair, and among those present were Lord Saye and Sele, Sir G. Laurence Gomme, (Clerk L.C.C.; Sir George A. Riddell, His Honour Judge Renton, LL.D.; Mr. J. A. G. Reade, M.P.; Mr. F. C. M. H. P. Boulnois, Mr. A. D. Greston (President of the Institute of Municipal and County Engineers), Mr. H. A. Partlett (President of the Institute of Builders), Mr. J. S. Holliday (President of the London Master Builders' Association), Mr. C. W. Ball (President of the Quantity Surveyors' Association), Mr. Walter C. Williams (Mayor of Southwark), Mr. E. L. Corby, M.P., Mr. W. F. M. Arscott Bartrum (Master of the Tybers and Bricklayers' Company), Professor W. A. Scott, Mr. W. W. Thomas (Past President), Messrs. E. C. P. Monson and Percy B. Tubbs (Vice-Presidents of the Society), Mr. E. J. Partridge (Hon. Treasurer), Col. F. S. Leslie, R.E. (Hon. Secretary), Mr. G. A. T. Middleton (Hon. Librarian), Mr. Ian Macdonald, M.P., Mr. F. M. F. T. Verbury (Secretary A.A.A.), Messrs. Thomas Adams, Max Clarke, John Darch, R. Cecil Davies, J. H. Dyer, J. S. Gibson, N. W. Harrison, T. E. Lidiard James, A. R. Jemmett, E. M. Leest, A. S. Ley, R. J. Lovell, C. Luff, E. Monson, C. Stanley Peach, E. J. Sadgrove, J. W. Sanderson, Alban Scott, B. R. Tucker, F. J. Westwood, and Mr. A. Sedgwick Willson.

McArthur Butler, Secretary, will-on-

Mr Arthur Butler (Secretary, etc.) rose from the chair, and heartily responded to Sir Laurence Gomme proposed "The Houses of Parliament," remarking that in any method of devolution which might be adopted to lessen the pressure which now choked legislative progress, it was to be hoped that steps would be taken to disengage the members by the whole body of Members in each House such questions as whether a tramway should, or should not, be permitted to pass through an obscure London street, and, if allowed, what form of traction should be adopted. With the least he coupled the names of Lord Saxe and the Mr. Atherton Jones, M.P., and, finally, he said that on the following evening, "The Society of Architects," was entrusted to His Honour, Judge Rentoul, who congratulated the members on their continued progress, and in their name formally conferred to the President the gold medal presented upon him in recognition of his indefatigable labours for the Sanitary Cause, and in consequence of Registration during his four years of office.

In responding, the President, who was received with musical honours and hearty applause, thanked the Council and members for the presentation of the gold medal, which he should ever cherish as his chief possession and as a reminder of the four strenuous years during which he had had the honour of occupying the chair. He continued:

Only one thing I can think of to give pleasure to be able conscientiously to congratulate my fellow-members upon the continued progress made by the Society of Architects. For many years now our annual reports have placed on record, year after year, a steady and consistent increase in our membership, and also a steady and more developed financial resources and notwithstanding the suspension of our activities during several months, in honourable conformity with the spirit of an agreement entered into between the Council of the Royal Institute and ourselves, the suspension of our activities has not checked our progress; during the last eighteen months has beaten all previous

Ourselves. Of course, the abnormal success of our efforts during that period may be to some extent attributed to the fact that we entered into possession of our new home in Bedford-square in September, 1910—a home which stands in one of the most convenient and readily accessible spots in London, and which affords in addition to the accommodation for the public, the most complete and many of the comforts and conveniences of a social club, and your Council fully anticipate still further large additions to our ranks, as these advantages become more generally known and appreciated. Numerically and financially we are advancing very rapidly year by year, and I venture to say the strong and powerful position which we occupy is largely due to the fact that we speak so well for the popularity of the course with which it has for so long been identified. Members are now entitled to ask what progress I have to report in regard to the Registration movement since our last annual dinner, and in reply I shall be obliged to say, "None whatever," and as this may to some extent be due to the fact that the period of the year has not yet opened up, I am sorry to have to propose to take the blame upon my shoulders, although, at the same time, I may complain of the fact that in these days of unrest the path of a mediator is a very hard and difficult one. The subsequent approval of my action both by my colleagues on the Council and my fellow members is an assurance that you believed my action was prompted by an honest and sincere conviction that it was the best way to advance the object of the cause we all have at heart, and I am still convinced that the course I adopted was (had party pride and prejudice not to be taken into account) the only one offering any promise of ultimate success which was, at the same time, consistent with our previous expressions of opinion. For more than a quarter of a century, as pioneers of the cause, we have stood alone, and stood and worked alone, in the face of the most persistent and bitter opposition, in which our opponents brought to bear every conceivable weapon of abuse, irony, and ridicule, but never once that of practical argument. In the autumn of 1910 we had, however, so far advanced that we had just completed a new issue of the proposed Registration Bill, and had made the necessary arrangements for its immediate presentation in the House of Lords, thanks to the kindness of Lord Saye and Sele. But to thoroughly understand the true position of affairs at the moment it is necessary to recognise the fact that an entirely new situation was created when the Council of the Royal Institute pledged themselves to the proposed Registration Bill, and for during the whole course of our existence we had consistently been expressing the opinion that such was their duty, and that should they take up the question, and submit a fair and reasonable Bill, we should be prepared to loyally support them in their efforts to secure its passage through Parliament. Under the circumstances, three courses were open to us:—first, to support the Bill as presented in the House of Lords, as arranged; secondly, to suspend operations for a time and await the production of the Royal Institute's Bill; and, thirdly, to endeavour to open negotiations with the Royal Institute at once, with a view to the production of a joint Bill. Of these, the last, from a tactical point of view, was the most reasonable, and it is probable that the Bill, should it be introduced in the House of Lords, have reached the Committee stage, and its opponents would have been compelled to formulate their opposition, chiefly by way of proposed amendments, and, whatever the result, matters would thereby have been materially advanced, for the situation would have been clearly defined, and we should then have been enabled to accurately gauge the strength of the enemy; but in the face of our previously expressed and repeated expressions of opinion, I felt it was a course we could not honourably follow. The second would have been extremely foolish, as, after waiting probably for many years for the production of the Royal Institute's Bill, and the fact that in the interests of the Society and of all others concerned outside the ranks of the Institute itself, we should be then compelled to oppose it. As a matter of fact,

subsequent events proved that we were right in this assumption, for the claim put forward by the Royal Institute's representatives, in regard to the composition of the registering and administrative council under the Act, was one which the Society, as an independent body, could not then, nor ever, agree to. On the other hand, the suggestion for amalgamation, as a way out of the difficulty, because it is now recognised by the responsible leaders of both bodies that neither can possibly carry a Bill through Parliament if opposed by the other. There remained the third, and what, I submit, was the only sensible and honourable course, and this was the proposal, On the 10th of August, 1901, Mr. Leonard Stokes's personal letter, pointing out very fully my views of the situation, and suggesting a joint meeting of representatives to consider it, undertaking, should the suggestion be favourably received, to forward an advance copy of our revised Bill, in order to facilitate discussion. Mr. Stokes and the members of his Council, when he proposed, with the result that a series of joint meetings extending over twelve months were held. While, for obvious reasons, added the President, he could not speak about the qualifications of our own representatives on that joint committee, he ventured to suggest that among those who represented the Institute were some of the most able and professional gentlemen perfectly capable of protecting the interests of the Institute they represented, and in whose keeping its honour and dignity were perfectly safe, and who, while keeping their eyes definitely fixed upon the object they had in view, unhesitatingly admitted the justice of many of our contentions, and met us in a broadminded spirit, with a view to a compromise, and a compromise, of course, only those engaged in the actual discussion can possibly know all the reasons which led to the adoption of the scheme ultimately evolved, which included a fusion of the two bodies; but that it was a fair and reasonable one is evidenced by the fact that opponents on both sides objected to it for exactly the same reason—that it was a compromise. The reasons being made very great concessions and receiving very little in return. Well, most of you know how it was received; how, after being approved by the councils and members of both bodies, a legal hitch occurred in regard to the power of the Institute to enter into such an agreement, how its Council immediately set to work upon an amendment to meet this difficulty, and how it was a second time submitted for approval in a meeting at which about a seventh of the Institute's members were present, and which was obviously packed by an organised opposition consisting of junior members. It was referred back, ostensibly, upon a side issue, about which we care nothing, and by that was practically shelved. It was twelve months, or even less, thought and study given to the subject, and its bearings by their duly appointed representatives and nominal leaders, has been rendered of no avail, and their broadminded and farseeing policy has been left in confusion, and this in the face of their President's remark at our last annual dinner, that "the agreement will be carried out." Well, may be said that "defeat in some causes is more honourable and glorious than victory." No great progressive movement was ever carried to a successful issue without some sacrifice; but the grand ideal of our leaders, who aimed at nothing less than the establishment of that profession of the future within our ranks, and the carrying out under one name, which would have rendered all ethical and educational reforms within our ranks much easier of attainment, and would, at the same time have positively secured that unity of action in regard to Registration which is essential to success, was, apparently, by some of the younger men in the profession, considered worth giving up for a little "defeat" with the arrogance which, usually accompanies immature thought, they had no difficulty in assuming that they were perfectly justified in committing themselves to a wretched policy before they had even

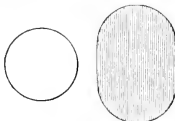


FIG. 5A.

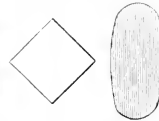


FIG. 5B.

FIG. 5C.

FIG. 5D.

instance: 1. loads and reactions are applied in the plane of the web, as in Fig. 5A, the flanges receive their stresses from the web eccentrically, the intensity of the stresses is correspondingly increased, and the channel is warped in deflecting; while, if the loads and reactions are applied at the centre of gravity of the channel, as in Fig. 5B, there is a tendency to bend the web, and develop aerious complex stresses, in addition from those computed from the ordinary theory.

It is generally best to avoid the use of unsymmetrical sections as beams unless connected in symmetrical pairs or otherwise laterally supported. When they are used it should be with a liberal allowance.

In ordinary practice, the stresses in beams

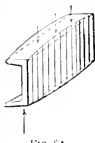


FIG. 5A.

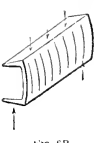


FIG. 5B.

are computed for direct stress in the extreme fibre and shearing stress at the neutral axis; yet, according to the theory of flexure, the critical points in beams under concentrated loads may lie between the neutral axis and the extreme fibre. As an illustration, consider the case of the 30in. girder beam, Fig. 7, under a load of 439,000lb., concentrated at the centre of a simple span of 79.64in.:

In these conditions, the shear per square inch at the neutral axis is 12,000lb., and the extreme fibre stress is 16,000lb. per sq. in., but the direct stress at the foot of the fillet, 2.4in. from the top of the beam, are: compression 18,600lb. per sq. in., and tension, at right angles to the compression, 5,220lb. per sq. in. (and, vice versa, 2.4in. from the bottom of the beam). If the ratio of lateral compression to longitudinal extension is one-third, these compound stresses will produce the same linear compression as would be caused by a simple compressive stress of 20,400lb. per sq. in., and any shear of more than 142,300lb., at a cross-section where the extreme fibre stress is 16,000lb. per sq. in., will produce linear strains greater than would be produced by a simple stress of 16,000lb. per sq. in.

In making these computations, I was found to be 8104.3 lb. at centre axis = 200.12; m. at foot of fillet = 254.35; and y, at foot of fillet = 9.747lb. per sq. in. (when Q is 219,500lb. and 6,400lb. per sq. in. (when Q is 142,300lb.).

The maximum direct stresses at foot of fillet were found by the usual equation:

Maximum direct stress = $\frac{1}{2} f y = \frac{1}{2} q + \frac{1}{2} f y$, in which $f y$ is the horizontal stress at the point where the direct stresses are required.

SECTION VI.—OVERSTRAINED BEAMS.

The theory of flexure, even after allowing for its faults, is only strictly applicable within the elastic limits of the material. The elastic limit, even for specimens from the same melt of steel, will vary greatly, according to the amount of work put on them in rolling, and the original elastic limit, that is, the point where there will be a slight permanent set, is likely to be very low on the first application of the load. There is, however, a point in wrought iron and in soft and medium steel (known as the yield point, and often called the elastic limit), which is well marked in

direct tension and compression tests, at which the metal, which before has shown only slight imperfections in elasticity, begins to flow rapidly.

Many experiments have shown that imperfections in elasticity, indicated at stress intensities below the yield point in iron and steel strained to the yield point, disappear, after a rest, on subsequent applications of the load, the explanation being that the original imperfections were caused by initial internal stresses which were removed by overstraining.

There has been much confusion with regard to the elastic limit, and it is not possible to

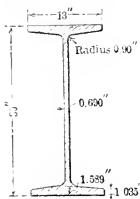


FIG. 7.

tell from some reports of tests of beams whether the elastic limit recorded was simply an imperfection which the first loading would correct, or whether it was the critical elastic limit. It would be well in all doubtful cases, after beams under test loads have shown some permanent set and before testing them to destruction, to have the loads removed and the beams retested, after a rest.

Solid sections, such as pins, can, according to the theory which considers the effect of overstraining, develop, with a slight and almost inappreciable permanent set, a considerable permanent strength in excess of that indicated by the ordinary theory of flexure. If a horizontal pin without internal stresses is strained to the elastic limit by a vertical load, the intensity of the stresses decreases almost uniformly from the outer fibres to the centre, but if the load is increased, the overstrained fibres toward the top and bottom deform so easily, as compared with the others, that, instead of the stresses decreasing uniformly from the extreme top and bottom toward the centre, the metal for quite a distance from the top and bottom, if the load is sufficient, will be strained to the elastic limit; thus greatly increasing the capacity of the pin in the direction of the load. If the load is gradually taken off, the fibres toward the top and bottom will be entirely relieved of their stress before those nearer the centre, after which tension will be developed in the top and compression in the bottom, forming a couple balanced by compression between the top and the centre and tension between the bottom and centre; further, the pin will have a permanent deflection. If the load is again applied, the effect of taking off the load will be reversed, without any additional overstraining, unless the original load is exceeded. If the direction of the load is reversed, the internal stresses will tend to lower the elastic limit of the pin.

There is another element which tends to enhance the permanent strength of overstrained and beam-like pins: When iron or steel is overstrained it becomes plastic, but solidifies when the strain is removed. On the removal of the load, the change during a rest from a plastic to a solid state, at a temperature much below the solidifying point,

has an effect somewhat analogous to that of sudden cooling of soft and medium steel; it causes the metal to have a finer grain and a higher elastic limit.

Some experiments by Professor Thurston on 1in. square wrought-iron beams, 22in. between supports and loaded in the centre, well illustrate the elevation of the elastic limit from overstraining. One of these beams showed some loss of elasticity under a load of 200lb., and an extreme fibre stress of 6,700lb. per sq. in.; yet it subsequently developed, as nearly as could be measured, seemingly perfect elasticity under a load more than eleven times as great.

It may be inferred that overstrained beams, especially those in which the metal has not been spread out too thin in the effort to obtain a large moment of inertia, will similarly develop considerable permanent elevation of the elastic limit, provided they are proportioned and laterally supported so that they will not buckle; but suitable tests are needed before this can be regarded as a certainty.

Beams are especially susceptible to initial internal stresses, and, therefore, to imperfections in elasticity within the yield point, as the flanges, being thicker than the webs, are yet hot after the webs have cooled, and in cooling compress the webs horizontally and are themselves brought into tension. If the upper and lower halves of a beam were independent trees, they would bend in cooling, so that the flanges would be on the inside of opposite curves, but, being joined, they are prevented from curving and, instead, develop in the web vertical tension at the ends and vertical compression at the centre. In the days of wrought-iron beams it was not uncommon to have their webs split horizontally at the ends from such tension.

(To be concluded.)

Mr. C. J. Cross, surveyor to the Kirkham Urban District Council, has accepted an appointment as assistant surveyor of the inland Revenue at Lancaster.

A Board of Trade inspector examined on Friday the new line of the North-Eastern Railway Company from Selby to Goole. The line was opened for passenger traffic on Wednesday.

The death is announced of Mr. W. J. Price, who recently retired from the position of surveyor to the urban district council of Manchester, Somerset, and who had since been a member of that council.

Major J. Stewart, R.E., Local Government Board inspector, has held an inquiry at Clacton with reference to the urban district council's application for permission to borrow £220 for the paving of promenade on the Cliff.

The new spinning section at Leeds University, designed by Mr. Paul Waterhouse, M.A., F.R.I.B.A., was formally opened and presented to the University on Friday by the Master of the Clothworkers' Company Mr. F. G. Fitch.

A new workhouse infirmary is about to be built at Rockliffe, Northf., for the Weyland Board of Guardians. Mr. D. J. Green, of Norwich, is the architect. Mr. Reuben Shanks is the builder, and Mr. S. G. Barker of King's Lynn, the clerk of works.

Mr. Hugh H. Scott Wares, A.R.I.B.A., only son of Dr. Willey, of Somerset, Regate, was married at Garsdon Church, Surrey, on the 24th ult., to Miss Janet Gwendoline, second daughter of the late John Roberts, Muswellbrook, Charltonhouse, Bath, and of Mrs. Roberts, late of Lichfield, Regate.

Foundation stones of the new buildings of the Wesleyan West London Mission in Kingsway were laid on April 25, when it was announced that £50,000 of the £60,000 required had been subscribed. The architect is Mr. Herbert, of the Corporation, Finsbury House, E.C.

The reinforced-concrete work is on the Kahn system. At Southborough, Mr. A. G. Dury, M.I.C.E., an inspector of the Local Government Board, has held an inquiry into applications by the corporation to borrow sums of £2,500 for drainage at the Belcher, Greenwich, which the corporation have acquired from Mr. G. L. Beecroft, £500 for dealing with a landlip at Holbeck Gardens, and £657 for works of street-improvement in St. Thomas-street, where property has been demolished.

OBITUARY.

We regret to announce the death of Sir John Taylor, K.C.B., F.R.I.B.A., for many years the principal architect in H.M. Office of Works. Sir John Taylor, who died on Tuesday at his residence, Moorfield, Surbiton Hill, was in his seventy-ninth year. He was born in 1833, the son of Mr. William Taylor, of Warkworth, Northumberland. He entered the Office of Works in 1850, and became a Fellow of the Royal Institute of British Architects in 1881. From 1866 to 1898 he was Surveyor of Royal Palaces and Public Buildings in the Office of Works, and was afterwards consulting surveyor. He was created K.C.B. in 1897. Among the principal buildings executed by Sir John Taylor in London were the new Record Office in Chancery and Fetter lanes, and the new War Office in Whitehall, where he carried out, in conjunction with Mr. Clyde Young, the designs of the late Mr. William Young. He was also responsible for large additions to Marlborough House, for the Bankruptcy Courts and offices in Carey-street, the principal staircase and central exhibition rooms at the National Gallery, Bow-street Police-court and Police-station, and the Marylebone Courts. Sir John Taylor was captain of the Royal Wimbledon Golf Club in 1893, and of the Home Park Club in 1906 and 1906. In 1860 he married a daughter of the late Mr. Henry Hadland. The funeral service will be held at St. Mark's Church, Surbiton, tomorrow (Saturday) morning, at eleven, and the interment will be at Brookwood.

We are also sorry to hear that Mr. Jonas James Bradshaw, J.P., F.R.I.B.A., the founder and principal of the firm of Messrs. Bradshaw and Gass, of Silverwell-street, Bolton, died at his home, Greenmount, Heaton, near Bolton, on Sunday night, aged seventy-six years. Mr. Bradshaw was one of the oldest architects in Lancashire; he had contrived many improvements in the planning and construction of cotton-mills, and had won many important competitions during the half-century he has practised in Bolton. For more than half that period he was associated with him in his professional association. Among the recent works of the firm illustrated in our pages are Belmont Congregational Church, Bolton, given April 19, 1901; Leysian Mission Buildings, City-road, E.C., April 19, 1901, and Dec. 21, 1906; Thomason Co-operative Reading room, Bolton; Withnell Fold house, near Chorley, Lancs.; and Manchester Stock Exchange, all published in 19, 1901; business premises at Bradshawgate, Bolton; Baptist Chapel, Farnworth Teachers' Centre, Bolton, and Wesleyan mission buildings, Liverpool, all on February 2, 1906; King's Hall, Bolton; Co-operative Insurance Buildings, Manchester; Tibbottson's premises, Bolton, and house at Bolton, all on December 21, 1906; Zion Congregational Church, Manchester, August 23, 1907; Congregational Church House, Manchester, August 23, 1909; and Stockport Central Library, December 9, 1910. The firm were among the six selected for the final competition for the Manchester Art Gallery, and their design was illustrated in our number for December 15, 1911. In 1886 Mr. Bradshaw joined both the Royal Institute of British Architects and the Manchester Society of Architects, in each case as a Fellow. From 1876 to 1882 he had a seat on the town council. He leaves a widow and four daughters. The funeral service was held at Unity Church, Deane-road, Bolton, yesterday (Thursday) afternoon, and was followed by cremation in Manchester.

Mr. John Barlow Badcock, F.R.I.B.A., died on Thursday last week at Holford-st., Cliff Parade, Lough on Sea, Essex, in his eighty-first year. He joined the Royal Institute of British Architects as a Fellow in 1876, and held the certificate of competency to act as a street surveyor in London.

Mr. George Henry Hopkinson has been appointed by the Corporation of Chorley as a member of the Council, at £200 per annum.

COMPETITIONS.

A BRITISH COLUMBIA UNIVERSITY COMPETITION.—At Victoria, British Columbia, a fortnight ago, a deputation of the British Columbia Society of Architects waited upon the Hon. the Lieutenant-Governor after a protest against the terms of competition for the University Buildings at Point Grey, B.C. The members of the architectural profession were requested by the R.A.I.C. not to compete for the reasons that no independent assessors had been named; that the first prize was merged in the commission; and that no time limit had been placed on the incumbent residence and practice. Before the British Columbia Society sent their deputation to the Provincial Premier, repeated applications had been made to the Minister of Education, but without avail. The lack of technical knowledge shown in the conditions relating to the architectural features of the competition made it plain that the person who was to be the conditions was grossly incompetent. In regard to the matter of assessors, it was felt that if the judges were no more competent than those who drew up the conditions of contest, it would be useless to spend time and money on the competition. The members of the deputation emphasised these points, and asked that in consideration of the extensive nature of the work, the premium money should be divided into five awards instead of into three, as suggested.

BRISTOL.—A town-planning competition is being promoted, which is intended to deal on broad lines with the whole of the environment of the city where building is likely to take place. The competition is being arranged by a special joint committee of the Bristol Society of Architects, the Somerset, Gloucestershire, and South Wilts Committee of the Surveyors' Institute, and the Bristol Civic Incumbent. The committee is at present engaged in drawing up the conditions of competition, which, it is hoped, will take place some time during the summer. It will not be confined to local competitors, but will be thrown open to the country generally. The conditions will be of such a nature as to insure the plans submitted being of such a character that they may be of service to the corporation, if they think fit to make use of them, when the town planning of Bristol is eventually undertaken. The conditions will follow the lines of the competition held in Halifax in 1911. The competitors will not be required to go into details, but to aim at a comprehensive scheme of planning, dealing with the necessary main roads, the alteration and widening of existing main roads, the provision of industrial and residential zones, and the provision of open spaces. Substantial premiums will be offered. The money for the fund is being raised by private subscription.

CALCUTTA. The expert committee appointed by the Port Commissioners have awarded the premium of £3,000 offered for the best design for a new floating bridge over the Hooghly connecting Howrah and Calcutta, to replace the existing bridge built from Sir Bradford Leshie's designs in 1874, to the German firm, Maschinenfabrik Augsburg, Nuremberg, and have recommended the acceptance of their tender. The tenders ranged from £411,000 to £521,000, that of the German firm being about £550,000. The premiated design shows a bridge of nickel-steel, to be built in three spans, giving 200ft. of riverway in the centre and 500ft. of riverway on each side. The shore spans will be supported on solid ornamental abutments, and there will be two groups of pontoons at each side of the opening span in the centre. It will open on the Scherzer rolling bascule system. The bridge will be 60ft. wide, with a 12ft. footpath on both sides, and with room for a carriage-way on each side of the double tramway track in the centre.

CARDIFF. In open competition for new grand stands, etc., for the Cardiff Rugby Football Club, the first premium has been awarded to Mr. Leitch, of Liverpool, the second premium to Messrs. R. and S. Williams, of Cardiff, and the third premium

to Messrs. Ivor Jones and Percy Thomas, of Cardiff.

HALE TOWN-PLANNING COMPETITION.—Referring to his circular letter dated February 8, 1912, the secretary of the Manchester Society of Architects regrets to say that the Hale Urban District Council now declines to make any alteration in the conditions. Each competitor has to purchase Ordinance sheets for the district at a cost of about 25s., and as these were last revised in 1908, he will have to go over the whole district and embody the numerous buildings since erected. Competitors are also asked to estimate the total amount of their charges should they be successful. As the duties are, to a very large extent, at present unknown, this becomes an almost impossible task. There is no guarantee that any qualified assessor will be appointed, either to adjudicate on the plans or to advise the council. The competitors committee approached the Hale Council before the conditions were issued, and as soon as the conditions appeared they pointed out to them the unfairness of the points mentioned above. The society is instructed by the council to inform us that these conditions are unsatisfactory; therefore members of this society must not submit, either directly or indirectly, any designs in the above-mentioned competition.

KING EDWARD VII. MEMORIAL AT HOLYROOD.—A further meeting of the Executive Committee of the Scottish National Memorial to King Edward VII. was held in Edinburgh on Monday, Lord Provost Sir W. S. Brown presiding. There was a numerous attendance, representative of the various districts of Scotland. The competitive designs and memorials were again examined, and afterwards an adjournment was made to Holyrood Palace, with a view to considering the designs in relation to the proposed sites for the memorial. The selection of a design, or designs, for submission to his Majesty the King was deferred until a later meeting, the date for holding which has not been announced.

PADHAM.—This competition for plans for the town hall and other municipal buildings at Padham is mainly for the purpose of laying out the ground, and it is not the intention of the promoters to carry out much, if any, of the building scheme in the near future. As the only remuneration offered for the complete plans of all the buildings is two small premiums, the competitors committee have been endeavouring to induce the promoters to meet the special conditions, either by some guarantee for the employment of the successful architect, or by substantially increasing the amounts of the premiums offered. The promoters, however, cannot see their way to vary the terms already offered. The Manchester Society of Architects considers that these conditions are unsatisfactory, therefore members of that society must not submit, either directly or indirectly, any designs in the above-mentioned competition.

Our Illustrations.

WORKSOP COLLEGE CHAPEL, NOTTS.

Worksop College, one of the Woodard schools, was built from the plans of Messrs. Carpenter and Ingelow. Since the retirement of Mr. Ingelow, who left some notes for a chapel, Lord Mountgarret gave a sum of money for the erection of the chapel as illustrated in this issue. The chapel is 120ft. long, 36ft. wide, and 56ft. to the centre of the ceiling, and seats 430 persons. The chapel is connected to the school buildings by an ante-chapel. Since the opening, Lord Mountgarret has made a further gift of the stalls and panelling shown in the view. The builders were Messrs. Lowe and Sons, of Burton-on-Trent; the decoration of the ceiling was executed by Mr. F. A. Jackson; the sculpture and carving were executed by Mr. Paul Montford, R.B.A., and the clerk of works was Mr. F. Walker. Sir Aston Webb,

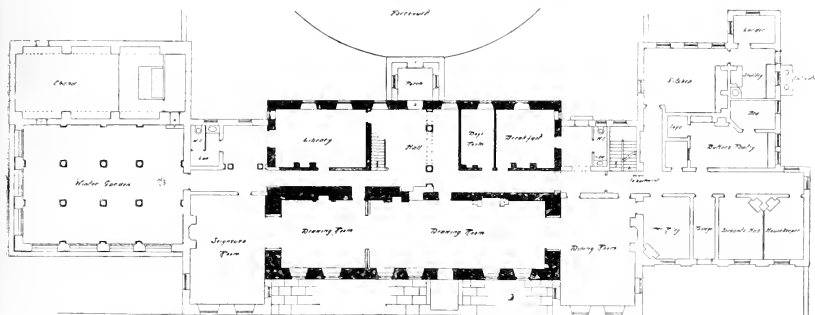
C.B. R.A., is the architect, and the drawing is on view at the Royal Academy Exhibition. **MANOIR DE LA TRINITE, JERSEY.** This house, now being built for Mr. Athelstan Riley at La Trinite, Jersey, is all new, with the exception of some of the walls of centre block. It was at first intended to cover the house with a very much lower roof, with granite gables, on the lines of an earlier house here. The design was so shown in a view of the other side of the house, showing the new gardens, which appeared in the R.A. exhibition in 1910. This design was abandoned, and the whole of the centre block has been covered in with a very steep roof in the old French manner, as shown on the drawing

of 4, Raymond-buildings, Gray's Inn, London. The drawing is exhibited at the Royal Academy.

GOLD AND SILVER MEDAL FIGURE-WORK FROM THE NATIONAL COMPETITION EXHIBITION.

The examiners who dealt with the class of modelling the human figure in the round from life—Messrs. W. R. Colton, A.R.A., Fredk. W. Pomeroy, A.R.A., and Francis Derwent Wood, A.R.A., Hon.A.R.C.A. (Lond.)—reported that they were pleased to find a very striking improvement in this important section, although they deplore the unintelligent use of sandpaper on the surface of the plaster which appears in some of the

gold medal, for a shaded full-length drawing of a woman from the nude, accorded to Mr. Horace E. Quick, of the Clapham School of Art (L.C.C.) at Wandsworth, is of such merit as to leave no room for doubt as to the justice of the award. The judges were Messrs. George Clausen, R.A., R.W.S., Hon. A.R.C.A. (Lond.), Arthur Hacker, R.A., and J. Seymour Lucas, R.A.—forming, of course, a sufficiently distinguished jury to fully emphasise the importance of their remarks as to the advance in the quality of the work submitted in this section. We have reproduced this study on the right hand of our plate. The remaining subject is from an oil-painting of a figure from the life by Mr. David Jagger, of Sheffield Technical School,



THE MANOIR DE LA TRINITE, JERSEY.—Prof. REGINALD BLONFIELD, A.R.A., Architect.

illustrated. The pitch of the roof is the same as that of the great roof of the house at Montainville (end of fifteenth century). The materials are local granite, and the roofs are covered with small Delabole slates, with lead hips, ridges, and finials. Professor Reginald Blomfield, A.R.A., F.R.I.B.A., is the architect, and the drawing here reproduced is shown in the Royal Academy Architectural Gallery, to be opened to the public on Monday.

"THE GREENWAY," SHURDINGTON, NEAR CHELTENHAM.

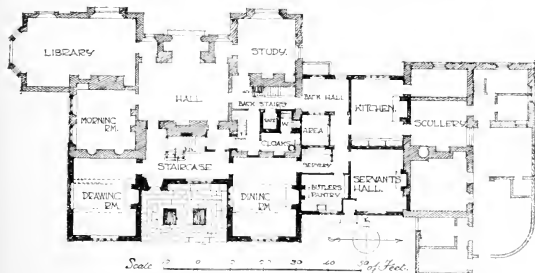
This house, which is now the property of the Rev. J. Sinclair, Archdeacon of Crencester, has been largely remodelled. The whole of the south-east front of the house, as shown by the drawing, has been rearranged, and is entirely new. This side of the house was given up to greenhouses and back yards. The contractors for the work were Messrs. Collins and Godfrey, of Tewkesbury. Mr. F. O. Marchant acted as clerk of works. The architect was Mr. Ernest Newton, A.R.A.,

works submitted. A gold medal was awarded to Mr. Albert G. Power, of Dublin, whose statuette of a child, here illustrated in the centre of the accompanying plate, amply deserved this honour, the modelling being full of charm and faithful observation. Mr. Alexander E. Sutcliffe, of Leeds, won two silver medals—the first for a modelled anatomical figure of a man, which is shown on the top of our illustration, and the second for a seated figure of a girl, in a refined relief, modelled from the nude. The modelled figure in relief, from a cast in the round, photographed at the lower left-hand corner of our sheet, represents a charming study of a Boy and Goose, in which the artistic treatment of relief is well understood, the proper pose being obtained. A silver medal was given for this to Mr. Robert W. Keen, of Bristol. The examiners in this case were Messrs. S. J. Cartledge, A.R.C.A. (Lond.), H. A. Pegram, A.R.A., with Mr. Pomeroy and Mr. Derwent Wood. They bear witness to the striking improvement manifest in this useful class generally. A

to whom a bronze medal was given, the examiners (Messrs. George Henry, A.R.A., R.S.A., J. Seymour Lucas, R.A., and S. J. Solomon, R.A.) expressing a regret that they felt unable to award a silver medal in this class. These photographs were lent us by the Board of Education, from the Illustrated Report officially and so excellently published, with a list of all the prizes and reports.

COTTAGE HOSPITAL, WELLINGTON, SALOP.

This small hospital is being erected by the trustees of the late Mrs. Bowring, of Wellington, on a site of three acres in Haygate-road, within a short distance of "The Wrekin." The adjoining land to the south-west is being laid out as a recreation-ground, thus affording a permanent open space around the hospital. The building at present is for eight beds, though the administrative portion is sufficient for double that number, and the wards are planned with a view to such future extension. Although the site is extensive, the contours of the ground restricted the building area, and, in order to meet the requirements, strict economy in design had to be studied. The appearance of a public institution has purposely been avoided, as it is felt that a more homely type of elevation is preferable for a "cottage" hospital. The general walling is Hin. brick, rough-casted, the roofs being covered with hand-made sand-faced tiles. Mr. Alfred Roper, of Wellington, is the builder, and Mr. Leslie T. Moore, A.R.I.B.A., the architect, whose plans were selected by the assessor in competition.

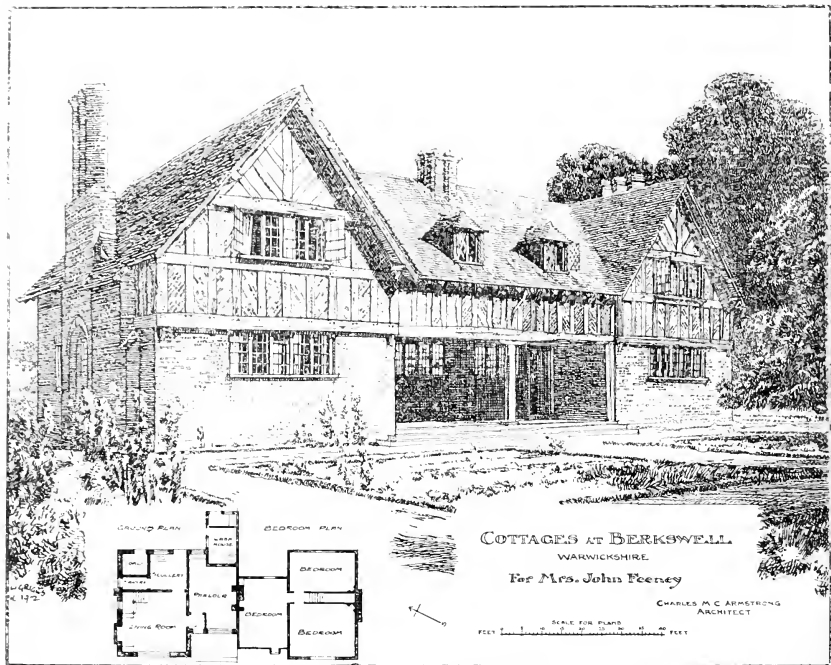


Scale 0 10 20 30 40 Feet.
Ground Floor Plan
New Work — Old Work —

THE GREENWAY, CHELTENHAM.

The city council of Coventry decided after much discussion on Tuesday to proceed with the advertising for tenders for the erection of new municipal buildings, and also to take steps for building a technical school on a site at Pool Meadow.

A report of the Housing of the Working Classes Committee of the London County Council states that the clearance of the Tabard-street area will involve the displacement of 4,552 persons, and the net estimated cost of the scheme will be £389,200.



COTTAGES AT BERKSWELL, WARWICKSHIRE.

These two cottages have recently been erected on high ground facing south west in a rural part of Warwickshire, near the village of Berkswell. The facing work was carried out in old materials; narrow bricks of varying shades, with the joints scraped; solid oak framing of a silver tone, pegged together, with herring bone old brick filling and rough plaster in the gables. Old tiles cover the roof, many with the helen still adhering, the valleys being built up to avoid the hard roof angle. In the grouping the stacks have been made a special feature. Local tradition and workmanship were observed. Internally, the rooms are spacious, and the three bedrooms each have fireplaces carried out in narrow bricks and tile creasing, which materials are employed in the parlour and living room grates. The woodwork is treated with Solignum. Several old oak beams are introduced on the ground floor, and the joists exposed. Oak holden bushes in the old barn are fitted to the interior doors. The gardens have paths in stone flagging and cobbles, and the pump to the well has been carried out in simple oak and beadwork. The existing old cottages facing south some 40ft. from these were carefully repaired and restored in keeping. Mr. Charles M. C. Armstrong, of Warwick, was the architect, and Mr. Charles Hope, 1, Upper, of Berkswell, carried out the work.

COMPULSORY REGISTRATION OF TITLE.

The question of compulsory registration of title was again discussed on Friday by the members of the Law Society, at a special meeting in the Society's hall, Chancery-lane. Mr. W. J. Humphreys presided.

The debate was resumed on a resolution, moved at the January meeting by Mr. J. S. Rubinstein, which recommended the council to consider whether or not the Privy Council should be asked to rescind the Order applying compulsion to the County of London, and also declared that the Land Registry Office was unable to justify its existence, and should be brought to an end.

The President now stated that the council were prepared to accept a portion of the resolution, but considered, after communication with the Lord Chancellor, that it would be useless to ask the Privy Council to rescind the Order, or to demand that the Land Registry Office should be brought to an end. He explained that their council had asked Mr. T. Cyprrian Williams to adapt to the present position the Bill which he had previously prepared, and this was now in shape as to the first part of it, which dealt with the simplification of the law. The Bill was sent in March to the Lord Chancellor, with a request that he would introduce it in the House of Lords, and they had received a reply that it would be carefully considered.

After some discussion Mr. Rubinstein's resolution was adopted in the following amended form: "That on the experimental working of compulsory registration of title in the County of London since January, 1899, has proved that the system is complicated, dilatory, and costly; (b) the amendments recommended by the report of the Royal Commission on Land Transfer are not calculated

to, and cannot, remove defects which are fundamental."

The following motion by Mr. F. Brinsley Harper was carried: "That it be referred to the council to consider and report to the society whether, in their opinion, the collection of rents and debts by solicitors on the terms of a commission being paid on the amounts recovered is unprofessional conduct on the part of such solicitors."

A parish-room was opened on Saturday, April 27, by Mrs. North, of Hightown, Canon Atkinson, rural dean, presided. The building was erected in the short time of four weeks, and is of brick. The building comprises a large room 50ft. by 24ft., with cloak-rooms, entrance, and outbuildings. Mr. Fred Statchard, of Bank Chambers, Castleford, was the architect. The cost was £300.

Six years ago the work of preserving Winchester Cathedral was commenced with an appeal for £12,000. Gradually the appeal grew, as the state of the fabric was discovered, to £113,000. Last week the balance required to make up this sum was £1,111; but further donations have reduced the total amount still needed to £811. A great effort is being made to raise this sum before July, when the cathedral is to be reopened in the presence of the King and Queen.

The foundation stones of new Sunday-school buildings, in connection with the Wesleyan Church at Woburn Park, Bristol, were laid on Saturday. The school will accommodate 250 children. It has been designed on the graded system, with primary, intermediate, and upper sections. The classrooms will be on the ground floor, and the large schoolroom above. The total cost is about £2,000. The architects are Messrs. W. V. and A. R. Gough, of Bridge-street, Bristol, and the contractors Messrs. Geo. Humphreys and Son of Stapleton-road, in the same city.

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Engineering Notes.

PANAMA CANAL EXCAVATIONS.—The Panama Canal is rapidly approaching completion, the total amount of material remaining to be taken out being only 29,446,000 cubic yards, rather less than eleven months' work, at the present rate of progress. In Culobra Cut eleven million cubic yards remain. This is the spot where there was a mountain 1,300 ft. in height, forming part of the Andes range, which is being cut down. The Culobra Cut ought, therefore, to be finished within eight months at the present rate. It is probable, however, that the speed will be slowed down towards the end to enable the several sections of the work to be completed simultaneously. The grand total of canal excavation to April was 163,877,209 cubic yards.

PROFESSIONAL AND TRADE SOCIETIES.

ALUMINUM ALLOYS FOR ENGINEERING AND BUILDING PURPOSES.—A lecture on "Aluminum Alloys" was given by Dr. Rosenhain, of the National Physical Laboratory, at a joint meeting of the Birmingham Metallurgical Society and other local metallurgical societies on Friday evening. Professor Turner presided. The lecturer pointed out the importance of weight in materials of engineering construction. In bridges beyond a certain size the principal load was the weight of the structure itself, and determined the limits of size to which single span bridges could be pushed. Similar considerations applied to roofs. In the moving parts of machinery weight was an obstacle to high speeds, while the disadvantage in trucks, motor cars, and aeroplanes was obvious. The use of light alloys raised some difficulties. In the early days undue expectations of the power of aluminum gained currency. With the purer metals now available the corrosion of these alloys was not more than that of steel. The lecturer proceeded to deal with various aluminum alloys, and gave a description of recent researches. Certain of the alloys studied, he said, were extremely promising for engineering purposes.

HAMPSHIRE FIELD CLUB AND ARCHEOLOGICAL SOCIETY.—The annual meeting of this organisation was held at Winchester yesterday (Thursday) afternoon. Dr. Williams Freeman gave an interim report on his work in connection with an archeological map of the county, and with the barrows. He raised the question of the continuation of the field club in the county. A letter was read from the clerk of the Hants County Council inviting the club to co-operate with the public works and buildings committee of the council in compiling a list of the ancient monuments in the county to which the Ancient Monuments Protection Acts apply, so that the county could be made able to take the attention of H.M. Office of Works to any monument which, in their judgment, may be worthy of permanent and adequate protection.

INSTITUTION OF CIVIL ENGINEERS.—At the annual general meeting of the Institution of Civil Engineers, held on Tuesday evening, April 30, the result of the ballot for the election of officers was declared as follows: President, Mr. Robert Elliott-Cropper (London); vice-presidents, Mr. Anthony George Lyster, M. Eng. (Liverpool), Mr. Benjamin Bull, B.Sc. (M.A. Edinburgh), Mr. John Strain (Glasgow), Mr. George Robert Jebb (Birmingham); other members of Council, Mr. John A. F. Appleby, M. Eng. (Liverpool), Mr. John A. Broad, M. Eng. (Liverpool), Mr. William B. Bryan (London), Col. R. E. B. Crompton, C.B. (London), Mr. J. M. Dobson (London), Sir Frederick H. D. Donaldson, K.C.B. (London), Mr. R. E. Ellis (London), Mr. W. J. Ellis, Sheffield, Mr. W. Ferguson, M.A. (Australasia), Sir Maurice Fitzmaurice, C.M.G. (London), Sir John Purser, C.B. (Ireland), Mr. C. A. Harrison, D.Sc. (Newcastle-on-Tyne), Mr. Walter Hunter (London), Mr. Harry E. Jones (London), Mr.

E. H. Keating (Canada), Sir Thomas Matthews (London), Mr. W. H. Maw, LL.D. (London), Mr. C. L. Morgan (London), Dr. Basil Mott (London), Hon. Sir Charles Parsons, K.C.B. (Weymouth), Mr. F. E. Robertson, C.I.E. (London), Mr. Alexander Ross (London), Hon. Sir Francis J. E. Spring, K.C.I.E. (India), Mr. A. M. Tippet (South Africa), Sir Philip Watts, K.C.B. (London), Mr. W. B. Worthington (Derby). This Council will take office on the first Tuesday in November, 1912. The Council of the Institution of Civil Engineers have made the following awards for papers read during the session 1911-1912: Telford Gold Medals to Messrs. Ernest and Walter Mansergh (London); a George Stephenson Gold Medal to Mr. Roger T. Smith (London); a Watt Gold Medal to Mr. A. H. Roberts (Leith); Telford Premiums to Mr. being an Goodman, A. B. McDonald (Glasgow), W. C. Bidgley Taylor (London), D. C. Leitch (London), W. C. Easton (Glasgow), and D. H. Morton (Glasgow); and the Manby Premium to Mr. S. H. Ellis (Liverpool). The award for papers published in the Proceedings without discussion, and for students' papers, will be announced later.

MANCHESTER SOCIETY OF ARCHITECTS.—The annual report of the council states that the aggregate membership is 283—viz., 112 Fellows, 117 Associates, and 53 students—as against a membership of 282 at the date of the last report, being an increase of 1. The council have long felt the advisability of getting more closely into touch with the outlying and distant parts of the society's extensive province. To do this they have now decided to divide up the whole area into twenty-seven districts, and to appoint in each an architect to act as correspondent for his district. By this means it is hoped to obtain the very earliest information of any proposed competitions and town-planning schemes, and generally to test the usefulness and influence of the society. During the past year the attention of your council has been drawn to two cases of tradesmen openly offering, by letter, a commission to architects. In each case the correspondence was submitted to the R.I.B.A., with a request that the tradesmen be prosecuted under the Prevention of Corruption Act, 1906. In one case J. D. Lodge expressed satisfaction with the explanations given by the tradesman, and in the other case the architect who laid the matter before your council declined to be associated in the legal proceedings which the Council of the Royal Institute instructed its solicitors to take, and as without this assistance legal proceedings could not be taken, your council had reluctantly to consent to the proceedings being dropped. The committee report that a travelling scholarship of the value of £50 has been established, and that arrangements had been made for the delivery of two popular lectures, under the "Warburton" Trust, on the subject of Town Planning. The number of individual students for 1911-12 was 34, as against 30 and 27 in the two previous years respectively. At a meeting held on the 24th ult. the report and accounts were approved and adopted, and following officers and members of council were elected: President, Mr. John Brooke, F.R.I.B.A.; vice-presidents, Professor S. H. Capper, M.A. A.R.I.B.A., and Mr. F. R. Dunkerley, F.R.I.B.A.; hon. sec., Mr. Isaac Taylor, F.R.I.B.A.; assistant hon. sec., Mr. J. T. Halliday, A.R.I.B.A.; members of council, Messrs. A. E. Corbett, John Ely, W. C. Hardisty, Joseph Holt, P. D. Lodge, Paul Ogden, Claude Paterson, J. H. Sellers, G. Sanville, Edgar Wood, J. H. Woodhouse, and P. S. Worthington.

SANITARY INSPECTORS AT JARROW.—A meeting of members of the northern centre of the Sanitary Inspectors' Association was held at the town hall, Jarrow, on Saturday. Representatives were present from Newcastle, South Shields, Jarrow, Tynemouth, Wallsend, Whitley Bay, Monkseaton, Felling, Blaydon, Hebburn, Chester-le-Street, Benton, and the River Tyne Port Sanitary Authority. The members

were conducted over the Jarrow Secondary School, and afterwards over the corporation baths. On returning to the town hall the members were welcomed by the mayor (Councillor M. C. James). At the meeting which followed a paper on the history of Jarrow was read by Councillor J. D. Rose. Dr. J. M. Nicoll (medical officer of health for Jarrow) gave some interesting particulars regarding the vital statistics of the borough. Mr. J. S. Collis (sanitary inspector, Jarrow) read a paper on "The Commercial Value of Thorough Sanitation." Twenty years' experience of thorough sanitation, Jarrow had removed the insanitary conditions, and in proportion had reduced sickness and death from preventable diseases. During the eleven years from 1890 to 1900 inclusive, 1,267 cases were removed to the hospital. Taken at £5 a head, that represented an expenditure of £6,035. During the succeeding period of eleven years 853 cases were removed to the hospital, which represented an expenditure of £4,265, so that there was a saving of £1,770.

THE SOCIETY OF ENGINEERS (INCORPORATED).—The annual dinner of this society will be held at the Criterion Restaurant, Piccadilly-circus, W., on Saturday in next week, the 11th inst., at 6.30 for 7 p.m., when Mr. John Kennedy, the president, will take the chair. Among those who have promised to attend are Sir H. M. Christie, K.C.B., F.R.S., Dr. David Gill, K.C.B., F.R.S., Mr. Maurice Fitzmaurice, C.M.G., chief engineer to the London County Council, Mr. Alexander Siemens, past-president Inst. C.E., and Mr. H. P. Boulnois, chairman of the Royal Sanitary Institute. The concert and conversation after the dinner will be a special feature of the evening's entertainment. Tickets may be obtained from the secretary, 17, Victoria street, Westminster.

THE EFFIGIES BY NICHOLAS STONE.—Mr. Alfred C. Fryer, lecturing before the Royal Archaeological Institute on Wednesday evening on "The Monumental Effigies of Nicholas Stone," said Stone was commissioned by James I. to undertake work at the Royal palaces in England and Scotland, and he also carried out, as mason, several designs for Inigo Jones. He acquired a great reputation for his monuments of persons of distinction. The effigy of Sir George Villiers, which he destroyed much of his work in London; but the effigies of Sir George Villiers and his lady, Viscount Dorchester, Francis Holles, and Sir George Holmes might still be seen in Westminster Abbey, as well as the monument of Thomas Sutton in the chapel of the Charterhouse, and the effigy of Dr. Donne, poet and Dean of St. Paul's, in the Cathedral. A large number of Stone's effigies were in various churches in the country. Some of his monuments and effigies were inferior to his other work, probably owing to his not being given a free hand by his patrons, or to his leaving too much to his workmen; but when left to himself, and using his own chisel, he was able to produce effigies which showed that he possessed considerable genius, and, if he could not attain to the high level of Hubert Le Sœur, he was a sculptor whose work formed an interesting study in the history of English art.

The Birmingham Education Committee considered, on Friday, a recommendation by the site and buildings sub-committee that the appointment of Mr. H. T. Buckland as architect for the time to the education committee be continued at a salary of £750 the present salary being £650. After a lengthy discussion, it was decided to refer the matter back to the committee, in view of opinion that more extended opportunities of competition should be afforded.

The L.C.C. Parks and Open Spaces Committee reported, on Tuesday, that they had under consideration the question of the laying out of Geoffrey's garden, Kingsland-road, which has been temporarily occupied by the use of the public. The committee are in favour of the use of the works proposed for the laying out of the whole garden is estimated not to exceed £1,000, but the committee have deferred for a year the consideration of the question of providing gymnasia for children in the playground.

CURRENTE CALAMO.

The annual dinner of the Society of Architects, at the Holborn Restaurant on Friday evening, bore no resemblance to the funeral feast of a body about to undergo absorption in a larger and older organisation. The members mustered in great force, the speeches were bright and often humorous, and the musical selections by Miss Beatrice Jeffreys, Miss Ala Wheeler, Mr. Lyell Johnston, and Mr. Ben Lawes enhanced the gaiety of the proceedings. The presentation of the well-deserved gold medal to the President, who has served the Society so well during four prosperous years of its history, might perhaps have been rendered a more impressive ceremony. In his reply, Mr. Bond, who was received with a cordial outburst of cheering, was able to assure the members of an unprecedented growth in numbers and a strengthened financial position, notwithstanding the suspension of activities by which the Society has been handicapped. He candidly admitted that during the year not the slightest progress had been made as regards Registration—indeed, the Bill so laboriously devised by a joint-committee of the Institute and the Society has been referred back, owing to the organised opposition of some of the younger men. Mr. Bond's story of the history of the negotiations for amalgamation with the Institute was candid, and his facts creditable alike to himself and to Mr. Leonard Stokes and the Institute Council.

If some present regretted that recent indications point to the probability of Mr. Leonard Stokes's prophecy at the Society's last dinner, which the President quoted, being unfulfilled, others doubtless consoled themselves with the conviction that the Society would not suffer either in numbers or prestige. We do not think it will. Its own "insignificant little flappers," at any rate, have not risen in revolt against their own Council, or sought to repudiate a policy to which it was pledged, or set themselves to wreck that which they were incapable of understanding. If that wrecking policy at the Institute unfortunately succeeds we venture to predict that Mr. Bond's good-tempered and wise remarks last Friday will not be forgotten. "If there is any honour in the Institute the agreement will be carried out." If it is repudiated by a few men who do believe in honest effort to unify the profession will seriously reflect which of its organisations is most likely to second their aspirations and deserve their allegiance. Therefore the very present duty of the Society of Architects is to treble its membership and redouble its activities at the earliest possible period; so that, ere long, the volume and energy of its response to the call to action may win the battle which, perhaps, has daunted some elsewhere, and who shirked it behind petty pleas of incompatibility of comradeship.

Perhaps ere long, justified by an equal status as far as numbers go, and continued efforts to consolidate and guard the best interests of his art, the M.S.A. may not need consolation for the standoffishness of some of the exclusives of the Institute of the sort found by an old darkey who wanted to join the fashionable city church in the United States, and whom the minister, knowing it was hardly the thing to do, and not wanting

to hurt his feelings, told to go home and pray over it. Thus "referred back," in a few days the darkey came again. "Well, what do you think of it by this time?" asked the preacher. "Well, sah," replied the coloured man, "Ah prayed an' prayed, an' de good Lawd He says to me: 'Rastus, Ah wouldn't bodder mah habd about dat no mo'. Ah've been trying to get into dat eh'ch mahsef 'fo' las' twenty years, and Ah done had no luck.'"

There should be some work for us presently in the building of dispensaries and sanatoria, if the Insurance Act is really coming into operation. According to the ideas of the Departmental Committee on Tuberculosis, which issued its interim report last Monday, between 225 and 300 dispensaries will be required for the United Kingdom, and sanatoria providing one bed for every 5,000 of the population. For administrative purposes, a county or county borough is recommended as the unit area generally, the county or county borough councils, or joint committees of local bodies to be responsible for the organisation, whilst for advisory purposes co-operation with the insurance committees and voluntary bodies interested in tuberculosis is suggested. We hope some of these good people will not waste money at the suggestions of faddists. Some of the proposals we have read lately are really amusing. One gentleman has quite convinced himself that a few battens and some a waterproof paper made the best possible sanatorium—because it can be destroyed and renewed at pleasure!

There are, doubtless, plaintively poetic Postlethwaites here who would regret the successful banishment of the fog-fog. So, in America, their brethren glow with enthusiasm over the beauties of smoke—Pittsburg smoke, too, which rivals the products of our own delectable Black Country. One of these anti-smoke-abaters assures us, in the New York *Metropolitan Magazine*, that the smoke clouds of Pittsburg "range all the way from fairy shavings and curls of pure white through geological strata of cream, mischievous, evanescent ringlets of bluish white, smudges faintly tipped with olive, aerial plumes of delicate rose, trees of orange and rusty red, through a hundred tones of grey, then deepening to a black as rich as the glossy, tarry coal from which it sprang." There is no human gratitude left if Mr. Carnegie fails to send this sweet singer of smoke a golden laurel wreath!

The text has just been published of Sir Thomas Roe's Bill to empower local authorities in England and Wales to levy a rate for advertising health resorts and watering-places. The measure authorises the insertion by local authorities of advertisements in newspapers not published within the borough or district so sought to be advertised, or advertisement by placards or otherwise, as they may see fit, and such bodies may expend money for the purpose provided that sums so expended shall not in any one financial year exceed the amount that could be raised by a rate of one penny in the pound on the rateable value of the borough or district. Generally, we think the idea of the Bill is good. One thing we should like to see, and that is the consent of the Local Government Board should be made compulsory first, and sternly refused to any town that fails to maintain a high sanitary standard, efficient precautions against overcrowding, or dis-

graces itself by permitting low-class and demoralising amusements, that repel decent people.

The "Half-Timer" is once again the experiment subject of our legislators, and not without reason. Few of them, however, seem to perceive that the repeal in 1814 of the Statute of Artificers, passed in 1562—another doctrinaire interference with practical politics—has been mainly responsible for child labour. The old Statute of Artificers made the apprenticeship—the best technical training of the time—compulsory. But it did more than that. It completed the best education a boy stood in need of, under the eye and in the home of a master, who was strictly bound by indentures and by the rules of the trade guilds. There are few masters now who can or will teach. The majority of the lads, after a superficial school education, are found "blind-alley" jobs, and some of them are sweated while still at school. Many trades have become so specialised that apprenticeship is impossible. The evening school is our best effort, so far, to continue education and to direct it to the growing needs of the lad. The problem is a complex one, and so far no one has really grappled with it. How are we, in these days of impatience of restriction of "industrial freedom," to insist on competence, and to secure the competent from the influx of the demoralising competition of the incompetent?

We fully illustrated the chosen design for the National Museum of Wales at Cardiff in our issue of April 1, 1910, and the other premiated designs in the same volume. This week a well-constructed model of the Museum has been on view in the Petitions-room adjoining Westminster Hall. The building will be placed in Cardiff in Cathays Park. The Government gives a grant for building and there is a nucleus income of £5,000—£3,000 of which comes from the State and £2,000 from the municipality of Cardiff. The scheme will be begun by a building representing rather under one-half of the total extent planned. The rest of the structure will be gradually completed afterwards. The architects are Messrs. A. Dunbar Smith and Cecil C. Brewer.

On the recommendation of the Academic Committee, the Council of the Royal Society of Literature has determined to award the Gold Medal of the Society to Mr. Thomas Hardy. The last recipient was George Meredith. The medal is now being struck, and will be presented to Mr. Hardy on his next birthday, June 2. Our heartiest congratulations to its recipient, whose genius would have assured him fame as well earned, if perchance not so world-wide, in the continued pursuit of our own art as he has won a foremost novelist of his age.

The estate and property committee of Newcastle-on-Tyne Corporation decided on Monday to confirm the minutes of the baths and wash-houses committee recommending the city council to erect public baths at Heaton at a cost of £8,000.

The Duke of Argyll unveiled the memorial which has been erected to the late Hon. C. S. Rolle on the sea front at Dover on Saturday. Mrs. Rolle (the wife of Captain Scott, the Arctic explorer) was responsible for the design and work of the statue. The statue shows the aviator in his aviating clothes with his hands behind his back, an attitude familiar to those who knew him.

architecture, literature, and decorative design. By adopting this method of training, painters, sculptors, and architects are taught at an early age to appreciate the merits and necessary limitations of their colleagues' work. The exponents of the three arts thus become accustomed to work together, and it is only by this appropriate application of their united efforts that a homogeneous and thoroughly satisfactory artistic result can be obtained.

To compare the results obtained under this methodical training with those that follow the haphazard system (or want of system) in vogue in this country is not only humiliating and depressing, but shows that our much-vaunted commercial instinct, in this instance, is disastrously astray.

This is only one aspect of the many problems relative to the welfare of the architectural profession which show the urgent necessity of obtaining statutory powers to enforce a satisfactory system of architectural education. So long as we are content to see untrained men allowed to practise in this country, just so long will the decadent period of architecture now existing continue.

GEO. H. HUBBARD.

We are, etc.,

A. W. S. CROSS.

THE INCREMENT DUTY HELD RESPONSIBLE FOR THE SLUMP IN HOUSE PROPERTY.

STR.—Ninety-nine out of every hundred would-be property purchasers misread or, rather, misunderstand, the Finance Act in relation to increment value. They think that if the value of the property, as a whole, increases in value they will be taxed on the increase. For instance, if a house and land were bought for £400, and afterwards sold for £500, they imagine £20 would require to be paid as the increment tax; whereas, if the land value had not increased, and the property were sold at a profit, owing to the astuteness of the owner, there would be no duty payable.

One of our best architects will bear me out that directly the Finance Act was passed they had commissions for buildings cancelled, the owners erroneously thinking that if they put a £1,000 house on to a £200 plot of land, and then sold the same for £1,500, there would be a duty of £50 payable; whereas the tax depends entirely on the increase of the site value, the building doesn't count. Architects, builders, and estate agents have repeatedly told me they have done a decreasing business since this Act was passed, and I imagine one factor to be the short miscomprehension. I strongly advise the dissemination of the true facts as one way to brighten a greatly depressed occupation.—I am, etc.,

J. H. KERNER GREENWOOD.

NOTES AND SKETCHES NORTH OF LONDON: CONCRETE FLOORS.

STR.—In your issue of April 19 a note is made of a very good piece of the Doric order near Hoddeston, and I should of your readers are in Hoddeston, and I must strongly advise them to see the interior of the Conservative Club there, which has some very good Jacobean work in it.

One of my customers, Mr. Nickolls, a builder, lives opposite, and Mr. Hunt, another well known builder, lives near by. Architects and builders will be most pleased to show any architect over this club.

In the same issue there is an article by Mr. W. J. May on "Concrete Floors," and there is one important item I should like to mention with regard to this, and that is, owing to the density of the linoleum, it very often rots through the dampness which rises from the concrete. This can be prevented if the cement is puddled, that is to say, if a few pounds of Pudlo are added to the cement before it is laid.

Pudlo is a powder which I make, and which absolutely makes cement waterproof. It is ideal for this work, and the expense is very slight.—I am, etc.,

J. H. KERNER GREENWOOD.

King's Lynn.

LEGAL INTELLIGENCE.

IN THE MATTER OF THE ARBITRATION ACT, 1889.

BETWEEN Messrs. John Barker and Co., Ltd., and the Birmingham Club, Against, confirming our report from last week of this dispute under a contract for alterations and additions to the club's premises, dated Nov. 19, 1906 it will be noted that the arbitrator, Mr. Herbert Smith, was appointed on the 24th ult. Mr. T. Woodcock Biggs, for the claimants, and Mr. C. Herbert Smith, for the defendant, were present on the 24th ult. Mr. T. Woodcock Biggs, with regard to corrections of the shorthand notes of the previous days' proceedings, Mr. Joseph Harris was cross-examined by Mr. C. Herbert Smith as to various items embracing the roof of the old room, the iron railings, new lavatories, bricks, etc., and the proceedings were adjourned till the following day.

After the conclusion of Mr. Biggs' re-examination of Mr. Harris, Mr. Francis Barker, one of the directors of Messrs. John Barker and Co., Ltd., was examined by Mr. Biggs. How long have you been a director, or how long have you been in the firm of John Barker and Co., Ltd., for many years. Mr. Barker: Yes, it being formed into a company?—Oh, yes. Have you been a director since the company was formed?—Yes. How long is that?—I think about 15 or 16 years. During the time that the Birmingham Club matter was on, were you the director who had charge of the building department?—Yes. And you have had something to do with the matter, more or less, ever since, have you not?—Ever since the work was finished, I suppose so. The Arbitrator: Ever since the work was finished, did you say?—Yes, Mr. Biggs: Is it the custom of your company to practise black-and-white on customers?—Oh, yes. Have you ever been charged with it before?—No. Have you ever been insolvent in a similar way before by such a remark?—No. Continuing, Mr. Barker, did he remember that the witness, Mr. Fletcher, the architect, stating that it was the usual R.I.B.A. contract. He signed the contract, and saw the additional clause 13A before doing so. The writing in of that clause was explained to him, and he said, "I have work coming on, and that these new works would require to have an estimate and a blue order, and these were obtained. The matter was not discussed with the architect." The witness then asked Mr. Barker to say the truth of his life. His firm did give subsequent estimates, and had blue orders for them. He remembered Mr. Harris coming to him in his office on December 10, 1906. Mr. Fletcher, who was representing the club was present at this interview. How can the interview between Barker and Harris be binding against us? Mr. Biggs: We have had the evidence once from Mr. Harris, Mr. Fletcher, and the arbitrator. The witness, Mr. Harris came to me, and I think his expression was that the architect had made a blunder. The Arbitrator: This is in reference to the reduced thickness of the walls?—Yes, Mr. Biggs: Yes, Witness: And he confessed that the representative of the architect was not desirous that this matter should be mentioned, and he had come to an arrangement with him that to set off the mistake on the drawings, to reduce the walls from 18in. to 14in. I asked him if the architect knew of this, and he said: "No," and I said, "I will not be a party to any arrangement being made between you and the architect," and I insisted on a letter being written direct to the architect, pointing out to him the arrangement they had made. Then did you dictate the letter to the architect?—Yes. At least, the firm did, Mr. Harris's portions of it which were to go in the letter relating to the wall, and I afterwards saw the letter before it was sent. Mr. Biggs: Did you receive the letter on the following day from Mr. Lutvins?—Oh, I had the firm did, and I saw it. Is there another letter of any description referring to this wall or the set-off, the alleged agreement?—Not that I am aware of until 1907.

Continuing, Mr. Barker, did you then, then, I am talking about while the job was on?—No, I will not ask you what you thought? I made inquiries afterwards with regard to this, and was told that the agreement was stated. Mr. Fletcher: By whom?—Mr. Harris. Mr. Fletcher: That is not evidence, Mr. Biggs: Whom can he ask? He must ask his subordinates. Mr. Fletcher: I do not deny that, but I am not a party to it. Mr. Biggs: However, the objection is on the note. Mr. Biggs: I think it is evidence against you, and very strong evidence, and that is why you do not particularly like it. Passing over the question of the set-off, Mr. Biggs asked the witness if he had anything to do with the account that was sent in on November 1, 1907. Witness said No; but he had to do with subsequent accounts and applications for money. On March 12, 1909,

a meeting took place at his office, at which Mr. Thomas, Mr. T. M. Florence, and himself were present, and they went over all the items. On June 25, 1910, he gave notice through Mr. Biggs that he required the matters in dispute under the contract to go to arbitration. On July 4, 1911, his firm issued a writ for £1,271 8s. 7d. Thereupon an application was made to the Court to stop the proceedings, on the ground that they were an abuse of the process of the Court. The Master of the High Court, and the Judge, on July 31, 1911, maintained the Master Mr. David Morton Florence, master of the Solicitor General Department, and Mr. Barker and Co., Ltd., examined by Mr. Biggs, remembered the interview of March 12, 1909 between Mr. Francis Barker, Mr. T. M. Florence, and Mr. Thomas, and took notes thereof.

Resuming then, Mr. Francis Barker, recalled, gave further evidence. Mr. Biggs, addressing the arbitrator, said: I am going to make an application now, and ask you whether you are prepared to state your award in the form of a special case for us to take to the Court?—The Arbitrator: I do not quite know what that really means.—Mr. Herbert Smith: I think, in fairness to him, you should have given the arbitrator notice of it, so that he might have had his legal adviser here.—After some discussion, the arbitrator said he would not give an award till he had heard both sides. Then Herbert Smith then opened his case, and called Mr. Albert John Thomas, jun., manager for Mr. Lutvins, who said the suggestion that after the work had been going on about a month it was discovered that he had prepared the plans—or, rather, Mr. Lutvins had prepared the plans—without providing for a roof over the gentlemen's cloakroom, and that then it was arranged that provided Mr. Harris did not disclose this to the public, and that he would try to reduce the brickwork and the walls to put the roof on, without any extra charge, was ridiculous. He never agreed that reductions in the courtyard in the brickwork were to be set off against the roof in the cloakroom. Witness then gave evidence with regard to various items. Cross-examined by Mr. Biggs, witness said he had been with Mr. Lutvins since April, 1901. He was thirty-six, and he became manager at twenty-five. He managed the whole of the business, and he said that he had had architectural training. He had had twenty-three years' experience. His father was a builder. He was born among what are commonly called "the shavings," and so had practically been in the building trade from his infancy. He acted for Mr. Lutvins as quantity surveyor in certain cases. He was not a paid assistant. He did not work for nothing. He had a retaining fee. Doing the quantities did not come into the retaining fee. He got paid for that. He prepared the contract, and he said clause 13A in it was a clause he very often put in contracts—not always. He was to overlook the work. He had a clerk of works on the job. He used to visit the work; he could not say how often. After that, on the 12th inst., he said the work was adjourned till Tuesday, when Mr. Thomas's cross-examination was continued. The arbitrator then announced that his legal adviser was there, and the discussion was resumed on Mr. Biggs's application for the award in the form of a special case for the claimants to take to Court.

A NUNATON ARBITRATION.—A few weeks ago it was announced that the arbitrator in the case of Messrs. Stanley Brothers (Ltd.), colliery proprietors and brick and tile manufacturers, v. The Nunaton Colliery, had given an award in favour of the defendants, with power to the plaintiffs to appeal should they desire to do so. Messrs. Stanley have now given notice of appeal. The arbitrator's award was in favour of the defendants, the price of water supplied to Messrs. Stanley from the corporation mains.

DISPUTED CONDITIONS OF CONTRACT.—OWNER AND ARCHITECT SEED.—At Bromesacre County Court, before Mr. Justice Lawrence, on April 24, 1912, an action was brought by Robert, brought an action against William Tibbets, Reindeer Inn, Netherford, for £73 4s. 7d., balance of account alleged to be due in connection with the building of the cottages at Rubery. Mr. Maddocks appeared for the plaintiff, and Mr. Mowdell for the defendant. In opening the plaintiff's case, Mr. Maddocks said the contract was for £1,240, and they were claiming for £1,240. The original estimate was £1,285, but the deletion of certain items reduced the amount to £1,240 10s., and this was brought down to level money, £1,240. Various extras were carried out, including the erection of a new staircase of the old house, and the house fitting up w.c., alterations to the w.c.s, and drainage and other work in addition

that shown in the specifications. Payments were made from time to time, and on November 3 and 23, and on December 19, Mr. Gadd, the architect, gave certificates. He did not know what authority the architect had to amend his certificates, and the point would arise whether the architect had acted in a manner so unbecomingly that his jurisdiction was excluded.

Mr. Maddocks further submitted that conditions in the original contract were inconsistent with certain of the conditions which were afterwards added. Mr. Gadd said when his certificate was amended he had not signed it before him. Four or five years ago he built some houses for Mr. Tibbets, and he could not say whether any conditions were attached to that contract. When he signed the contract on the present occasion, nothing, said about special conditions. Cross-examined. He could not swear the printed conditions were not part of the document signed, because he did not see it. Previous contracts he had had with Mr. Gadd special conditions had been attached to his knowledge. By his Honor: The writing on the specifications in the present case referring to the special conditions was not on the original when it was given back on March 19, 1911. He had signed it, but he had not added the writing himself. By Mr. Maddocks: When he received it on March 4 the words, "For conditions, see original specification," were there. Mr. Gadd said it was just told to him they were not. By Mr. Maddocks: When he signed the contract no conditions were before him other than those he had returned. After the contract had been signed the specifications were altered. Mr. Gadd said the clerk to Mr. Gadd stated the specification produced was the one signed by Mr. Day, and the writing on it as to conditions was exactly as now. Cross-examined. Additions had been made to Mr. Gadd's original. Mr. Gadd said Mr. Bromsgrove deposed that the copy of the specifications that went to Mr. Day was the press copy of the original, and when it left his office it had the front sheet bearing the writing as now. When the contract was signed it was the same state as now, and the printed conditions were attached. This had always been the case in the dealings he had had with Mr. Day during the last ten or twelve years. His Honor remarked that that was the position, and the conditions were included in the contract. Dealing with the question of the dispute, Mr. Maddocks said the general conditions provided that the decision of the arbitrator should be final. That placed the arbitrator in an impartial position between the owner and the builder. He submitted Mr. Gadd had not done that, but had acted according to Mr. Tibbets' instructions. Mr. Milward submitted that the first two documents received of November 3 and 23 were advance accounts, and in the final certificate of December 19 Mr. Gadd had deducted the penalty and the maintenance. On the conditions he submitted that the architect was not bound without appeal. There was no evidence to show that Mr. Gadd had in any way acted unfairly or unjustly as arbitrator. Mr. Gadd, recalled, said he did not consult Mr. Tibbets in arriving at the conclusion that the terms in dispute were not extras. The first two documents which Mr. Maddocks had called certificates were only accounts. His Honor said he held that the architect was not bound by the defendant in his award as arbitrator. He acted impartially. He suggested, however, that the question of penalties should be waived. No order would be made, but plaintiff would take the £188 paid to the defendant with costs in the application.

Mr. Maddocks by His Honor gave a stay of execution, pending appeal within twenty-one days.

DAY v. GADD. Austin Day, the plaintiff in the last case, now sued George Henry Gadd, the architect, for £425 11s. 3d. money which had been paid by the plaintiff to the defendant for schedules of quantities which had not been delivered, and £1 15s. 6d. services rendered in drawing the defendant's plans. Plaintiff's statement of claim was again served on the plaintiff and Mr. Milward for the defendant. Mr. Maddocks called the defendant, who stated that he agreed to supply plaintiff with bills of materials for the church at Rotherhithe, and that he had done so. Plaintiff had received £25 11s. 3d. He had supplied the quantities because Mr. Day had supplied the schedules supplied in the execution of other houses of a similar character. When Mr. Day's convenience was taken into account, Mr. Day's convenience was not taken into account. Mr. Day had been driving with a car, and he had been asked to do a furthering. He was asked by other builders and he paid nothing.

The arrangements were made with the full knowledge of the owner, and he had not been paid for the quantities, he would have charged the owner more in fees. Day had paid the £25 in six different amounts, and he had not complained about the payment. His Honor held that the agreement was to supply quantities if required, and gave judgment for the defendant.

AN M.P.'S MANSION. An action against Mr. Mallaby-Decker, M.P., of the Harrow Division of Middlesex, to recover £494 8s. 7d., as balance of an account for the repair and decoration of his residence, Mitcham Court, Surrey, which was brought by the contractor for the work, Jave Edmondson, of Harrow road, was, after several days' hearing of the matter in dispute before the Official Referee, Mr. Edward Pollack, concluded on the 25th ult., with judgment against the defendant for £407, with costs.

A PICTURE THEATRE DISPUTE. At West-Bromwich County Court, on Tuesday, an action was brought by F. H. Heath, Limited, builders and contractors, of Manchester, against Alfred James and William Arthur Price, of London, who were the contractors for the erection of a picture palace in Grange-road, Bournbrook. The defendants counter-claimed for £100 on the ground that the work had not been properly executed. Defendants had paid the plaintiffs £18 18s. 6d. The plaintiffs, by their Honor, deciding that the plaintiffs were not entitled to £18 18s., gave a verdict for the defendants on the claim, with costs. With regard to the counter-claim, he said plaintiffs were to be paid the £100, but he would allow the defendants' particulars to the satisfaction of Mr. W. H. Kendrick, architect, Birmingham, the costs of the counter-claim being reserved.

MOTION TO ATTACH A FIRM OF BUILDERS AND CONTRACTORS.—Sun Assurance Co. v. C. Bushby and Sons, Limited. Before Mr. Justice Swinfen Early in the Chancery Division, on Friday, April 26, upon a motion by the plaintiffs to attach Mr. G. H. Bushby and Mr. W. Bushby, the two partners of the firm who had been partner, Mr. Alfred Bushby, the third partner, for the plaintiffs. The third partner, Mr. Alfred Bushby, the third partner, for the plaintiffs, said the ground of the application was that the defendants had not paid the plaintiffs an order to leave in charge certain accounts, verified by the plaintiffs, of the amount of wages paid by the firm of C. Bushby and Sons, builders and contractors, of Leeds, to their employees under the conditions in force under the Workmen's Compensation Act, issued by the plaintiffs in the month of the latter did not appear by counsel, but Mr. G. H. Bushby appeared in person. His lordship said to Mr. Bushby: Why have you not lodged an account? Mr. Bushby replied that he had made an affidavit giving the amount of wages paid. Mr. Strodre: I have seen that, and it is not a compliance with the order at all. Counsel said that the order under which his Honor proceeded was made by Mr. Justice Neville on March 12 last, and by it the defendants were directed to lodge with the Registrar within four days an account of all wages, salaries, and other payments paid by the defendants to their employees, and to produce the same policies. The plaintiff's company. The original order in the action declared that the plaintiffs were bound to keep a proper wages book which should be open to the inspection of the plaintiffs. There were three policies altogether, and the period covered by them was from April 7, 1909, to June 29, 1911. Mr. G. H. Bushby then read an affidavit of April 20, some five days after the issue of the motion to attach him, in which he appeared that the amount paid in wages for the contracts was during the period covered by the policies was £3,775 10s. 11d. Mr. Strodre submitted that the account was not properly verified, nor were the amounts sufficient. The plaintiffs were to know the number and nature of the employees, and he had not been able to see any pay-sheets. His lordship said he thought most of the details necessary were in the affidavits. To the defendant, who did not object to the motion to make an account. Mr. Bushby said he could not get the pay-sheets. His lordship, after examining some of the pay-sheets, said he thought they would give Mr. Strodre all the material to have produced the details before him. Mr. Bushby: We thought we had done everything necessary when we produced the books. His lordship: I will make no order on the defendant, except that the defendants pay the costs of it.

JR RE DANIEL NORTON. At the London Bankruptcy Court, on Friday, Mr. Registrar Brougham had an application for an order of dis-

charge by Mr. Daniel Norton, the sole surviving partner of the late firm of Daniel Norton and Sons, (under number 22 of the Estate Office, Chancery Court, Chelsea, who was adjudged bankrupt on January 15 last.—Mr. W. G. Williams, Assistant Official Receiver, estimated the buildings of the firm, which had been valued at £418 8s. 3d., and it was doubtful whether anything further would be received. The bankrupt had estimated at £34,667 the depreciation in the value of the firms' frehold and leasehold property, which had principally occurred since 1904. The learned Registrar suspended the discharge for the minimum period of two years.

THE BRITISH CORK ASPHALT, LIMITED. Last Friday, meetings of creditors and contributors were held in the liquidation of the British Cork Asphalt Company, Limited, of Blenheim House, London-wall, E.C., under a winding-up order made on January 16. A statement showed, in regard to creditors, gross liabilities £23,566 10d., and a deficiency of £14,986 16s. 2d. With regard to contributors, an additional deficiency of £113,870 was disclosed, making a total deficiency of £128,856 16s. 2d. The company was incorporated on July 22, 1907, with a nominal capital of £100,000, and was a subsidiary of the British Cork Asphalt, Limited, the promoters, certain patents relating to the making of cork asphalt, and to carry on the business of paviers and road-makers. The directors at the date of the winding-up were General Sir George and Mrs. G.C.B., and Mr. Thomas Culthard. The Assistant Official Receiver said he understood that the sale of the business had now been completed, and the liquidation was left in the department of the Official Receiver.

WHEN IS A BUILDING DANGEROUS?—On Thursday, April 25, the Lord Chief Justice and Justices Pickford and Avey, sitting in a King's Bench Divisional Court, heard the appeal from the decision of the Recorder of London, Mr. D'Eyncourt, the stipendiary magistrate sitting at the North London Police-court, under the London Building Act, 1894. The respondents to the appeal were Messrs. Matthew Jones and Son, the owners of premises at Nos. 132 and 134, Queensland-road, Islington, but they were not represented. Mr. Boskin, appearing for the London County Council, said the case raised the question as to the true meaning of the word "dangerous" in the London Building Act, 1894. It appeared that the respondents were the owners of two houses which were derelict and ruinous. A notice was served upon them to make certain structural alterations, the alteration being that the buildings were to be made safe. Following the receipt of the surveyor's report to that effect, the Council shored up the buildings, and as the owners did not obey the notice, a summons was issued against them, and that, came before the Recorder of London, the North London Police-court. At the hearing it was admitted that the buildings were not at the moment dangerous, because they had been shored up, and one of the houses was in a dangerous state, but the other was not dangerous, although they were ruinous, and no person except a trespasser would receive injury from their collapse. Therefore, they did not come within section 15 of the Act, and he dismissed the summons. Mr. Boskin said: It is a ruinous structure always dangerous? I see that the magistrate says the buildings were ruinous.—Mr. Boskin said he would argue that a ruinous building was dangerous, and that the respondents were liable to be shored up, and that the public had access. The Lord Chief Justice: What was the surveyor's report? Mr. Boskin: That the buildings were dangerous, and would collapse if not shored up. His Honor said: The respondents shored up the buildings, but the Council had temporarily shored them up it could be said that they were not dangerous.—Mr. Boskin said the buildings were dangerous even if, when they fell, they injured only water-pipes, drains, or gas pipes.—Mr. Boskin said: There must be a possibility of the buildings doing damage to somebody or something. Of course, it would not be sufficient to say that the buildings were dangerous if the only danger was to the gas pipes or the water-pipes. Mr. Boskin said that what seemed to chiefly influence the magistrate's mind was that the premises had been shored up by the council, and were, therefore, although in a ruinous state, not dangerous.—The Lord Chief Justice: Can the Council recover the costs of shoring? Counsel: Yes.—The Lord Chief Justice, delivering his judgment, said, in

his mind, neither of the magistrate's grounds for dismissing the summons was sufficient. The County Council had power to shore up the building for the safety of the public, but it did not follow that they had done that, as the building was no longer dangerous. The building must have been in a dangerous condition to warrant the surveyor reporting the matter, and the Council shoring them up. A point had been made that the house was in a ruinous condition and deserted; but he saw nothing in the Act which said that a ruinous house was not dangerous. He would not express any opinion as to the defendant's liability, as the case had not been reported to agree with any argument to the effect that because a building stood away from the road, and was not inhabited, it was not dangerous. The case would go back to the magistrate's verdict. Mr. Justice Pickford, concurring, said the fact that the danger had been for the moment averted by the temporary shoring up could not be put forward as an argument that the house was not dangerous. Of course every house which was likely to tumble down was not dangerous, but as the houses in question formed part of a row, it seemed impossible to say that the prospect of their collapse did not afford anxiety to somebody. Mr. Justice Pickford agreed that the house was not dangerous, and the case sent back to the magistrate.

ST. ANDREWS WATERWORKS ARBITRATION.—The arbitration between the Anstruther Easter Sea Box Society and the town council of St. Andrews has now been decided. Part of the land taken compulsorily by the town council for the construction of their new reservoir for Cameron consisted of 163.65 acres of the farm of Cameron, belonging to the Sea Box Society. The society claimed £12,000 as compensation for this land, and the town council lodged a tender of £11,000. Mr. Allan Carter, C.E., Edinburgh, acted as arbitrator for the claimants, and Mr. John M. Aitken, Norwood, Lockergie, as arbitrator for the town council. The arbitrators appointed Mr. A. H. B. Constable, K.C., as counsel, and Mr. George McIntosh, W. Edinburgh, was clerk to the reference. Evidence was led at considerable length on both sides, the proof having lasted for over a week. The arbitrators were unable to agree, and the case was referred to a referee, who some time ago issued tentative findings, by which he proposed to award £5,219 5s. to the claimants, being £19 5s. above the tender. Both parties lodged representations against the proposed findings, and the referee has now executed his decision, by which he awards the claimants £5,178 5s. 6d. as compensation (being £21 14s. 6d. below the tender), with interest as arranged between the parties.

ACTION BY SUB-CONTRACTORS AGAINST BUILDERS.—Messrs. Ashwell and Nesbitt, Ltd., against Allen and Co., came before the Court of Appeal, composed of Lord Justices Vaughan Williams, Moulton, and Farwell, on Wednesday, the 1st inst., upon the defendants' application for Mr. Justice Farwell to set aside the King's Bench Division. In this case, the plaintiffs, Messrs. Ashwell and Nesbitt, Ltd., of Leicester, brought the action against Messrs. Allen and Co., of Westminster, to recover £377 for the cost of the materials and labour for a building in Regent-street, London, under a contract dated May 12, 1909, under a certificate of Mr. F. T. Verity, the architect for the building-owners, Messrs. Lewis and Allenby. The defendants were the general contractor for the work, which was that of re-erecting premises belonging to the Crown in Regent-street, and the plaintiffs were sub-contractors for the heating and hot water installation to the amount of £1,000. Various payments were made by the plaintiffs on account up to March, 1911, falling short of the sum due by £377, for which sum the defendants denied liability. Defendants alleged that the work was done under contract, that it was a breach of the contract that payment should only be made to the plaintiffs on the inclusion of the amount in the architect's certificate, and on payment to the defendants by the building-owners of the amount. It appeared that the defendants had settled a claim of extras with the building owners for £5,000, part of which was paid in cash, and part in prior lien bonds issued by the building owners on the property. Plaintiffs alleged that the defendants' settlement was equivalent as between themselves and the defendants to payment to the defendants, and that the defendants were stopped from denying that they had received payment, and that the building owners had entered into an arrangement with the building owners they had no right to hold over the balance of the plaintiffs' account. The formal certificate for £377 was issued on March 1, 1910, by Mr. Verity, which the plaintiffs forwarded with a request for the

cheque, and this certificate Mr. Verity alleged was included in a certificate he issued in November, 1910, to the defendants for £1,585. This, however, the defendants denied, and the case was that at the time in question disputes were going on as to the number of radiators put into the building, and that they had given the building owners large credits for a large difference in the number supplied, and that they could go behind the certificate upon that ground, and also upon the ground that the architect, without any notice to the defendants, had issued a certificate for £377. Mr. Justice Colman, in giving the evidence, held that in the circumstances, the plaintiffs were entitled to recover, and gave judgment for them for the amount claimed, with costs. Hence the present appeal of the defendants. Mr. Hudson, for the appellants, said that the point for the Court was the validity of the architect's certificate. He contended that the architect had completely abrogated his functions as a certifier. He submitted that the architect, in the circumstances, had no power to give the certificate, and the account having been settled, it was invalid. Mr. Matthews, on behalf of the respondents, said it was admitted there was no collusion or conspiracy, therefore it was a valid certificate, upon which the defendants were entitled to be paid. If it failed in regard to the validity of the certificate, then he would submit that though the contract between Allen and Co. and the building owner was not incorporated in the sub-contract, as the appellants claimed, it was incorporated by various alterations under the larger contract, that authority extended to the sub-contract. In the result, their lordships said that, in their opinion, the validity of the certificate was doubtful, and that it was a case for a new trial. In the circumstances, however, the appeal would be allowed, the £377 paid into Court to be paid out to the appellants, who would receive the cost of the appeal and the costs of the trial in full. The case could be tried *ex quantum meruit*.

WATER SUPPLY AND SANITARY MATTERS.

CRAIL WATER SUPPLY.—Provost Sim turned on the water into the new reservoir for Crail on the 25th ult. On behalf of the engineer, Mr. Carruthers, C.E., Edinburgh, and Mr. Carruthers, C.E., Edinburgh, Mr. Morrison, assistant engineer, presented the provost with a silver gonc, mounted between two hunting horns. The new reservoir has a capacity of 2½ million gallons.

Mr. J. H. Drew, surveyor, and engineer to the Horbury Urban District Council, has been appointed surveyor to the Wath-upon-Deane Urban District Council.

A Select Committee of the House of Commons has passed the preamble of a Bill introduced by the Metropolitan Railway Company to establish connection between their system and Watford by means of a branch to be worked by electricity between that town and Rickmansworth. The scheme is being strenuously opposed by the London and North-Western Railway Company, who will renew their opposition in the House of Lords.

The experimental boring operations at Madley, Salop, at the spot chosen as the source of the water supply for the new works, have failed. The contractors have bored to a depth approaching 400 ft., without touching red sandstone rock, and the urban district council will now have to look elsewhere for water. The estimated cost of the works is £5,000; but that sum included the construction of a well and for works other than boring.

At a meeting of the Cumberland County Council on Wednesday, the question of the repair of Portinscale Bridge was discussed on a motion by Mr. G. Fox, who proposed that they should grant the bridge, as suggested in Mr. Fox's report, and raise the gradients on each side of the bridge as far as possible. Ultimately, Mr. Grainger withdrew his proposal, the chairman of the Council stating that the committee who recently held a local inquiry had not had the opportunity of formulating their report.

After having been closed for two months for enlargement, Boulter's Lock was reopened on Wednesday. The old lock was 152 ft. long and 18 ft. 6 in. wide, with a minimum depth of 7 ft. The new lock is 152 ft. long and 20 ft. 6 in. wide, with a minimum depth of 7 ft., and it can be divided by intermediate gates. The lengths of the two compartments are respectively 136 ft. and 64 ft. In place of the old lock, which was a manual lock, the new lock is to consist of two electrically-driven moving platforms crossing Ray Mill Island.

Our Office Table.

In reference to the resignation of the post of Director of the School of Architecture at Manchester University by Professor S. Herbert Capper, M.A., A.R.B.A., president of the Institution of Architects, on pneumonicia, which we announced last week, page 612, the council of the University have passed the following resolution:—"That the council of the University, in accepting Professor Capper's resignation, desire to express their great regret, and to place on record their sense of his services to the University as a first professor of the subject in developing the department of architecture and also of his invaluable work in relation to the officers' training corps as its commanding officer. They would convey to Professor Capper their cordial wishes for the complete restoration of his health."

At Tuesday's meeting of the London County Council the Building Acts Committee reported that they had considered a letter from the Home Office stating that the Tribunal of Appeal had requested the Secretary of State to fix, under sec. 179 of the London Building Act, 1894, for a further period, the scale of remuneration of the members of the Tribunal appointed under that Act and the London County Council (General Powers) Act, 1909. The scale laid down by the Secretary of State in 1905, and continued in operation from year to year until 1911, was, for each member, three guineas for the first hour and two guineas for each subsequent hour of each day's sitting of the Tribunal. The Council had in previous years informed the Secretary of State that it was of opinion that the scale was sufficient, and the committee saw no reason why that decision should be altered at the present time. The committee further reported that Mr. Vincent J. Grose, who is seventy-seven years of age, had resigned his appointment as district surveyor for Bermudez.

The town council of Brighton received yesterday (Thursday) a report giving particulars of an ambitious scheme for improving the Aquarium. It is proposed to construct garden terraces, about an acre in area, with level approaches from the Marine parade. These terraces will link up with the existing Madeira drive terraces, forming an attractive promenade to the eastern end of the cliff. A terrace for the performances of the municipal orchestra will be provided with approaches both from the Aquarium and the Marine parade, while a concert hall will have seating accommodation for 3,000. A winter garden, with promenade or lounge attached to the concert hall for reading, writing, and refreshments, is also suggested. The total cost of the scheme is £30,000, but at present the council are only asked to proceed with the concert hall and terrace and approaches from the Marine parade. For this purpose it is recommended to ask the Local Government Board to sanction a loan of £12,000.

An exhibition of pictures of local subjects by local artists was opened at York by the Sheriff of that city on Friday. The greatest number of the works are by Henry Tate and W. J. Boddy, whilst Edwin Mose, Joseph Halfpenny, and William Chapman are also represented. Cave's drawings, which were recently bought by the corporation, consist of some water colour drawings, and forty-one pencil sketches and tinted drawings of ancient buildings in the city, which the great antiquary, Henry Cave, gave to the corporation. "Antiquities" of York, published in the early part of the last century. Of the 137 water-colour drawings by the late Mr. W. J. Boddy, there is a good percentage which are of more than ordinary interest. They represent old houses in the city, and other buildings of historical interest, and are drawn with freedom and historical sense, and yet a remarkable fidelity. A recent purchase by the corporation of Opie's fine portrait of John Flaxman, R.A., the York sculptor, is also an object of great interest. Other notable numbers of an extremely interesting collection are five excellent water colour drawings



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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OUR ILLUSTRATIONS.

Sion Hill, Thirsk, Yorkshire. Mr. Walter H. Brierley, F.S.A., F.R.I.B.A., Architect.
Royal Society of Medicine New Premises, Henrietta-street, W. Messrs. John Belcher, R.A., and J.J. Joass, Architects.
Messrs. Williams Deacon's Bank, Matlock Branch. Messrs. John Langham and A.R. Parker, Architects.
Messrs. Barberrys' New Premises, Haymarket, S.W. Mr. Walter Cave, F.R.I.B.A., Architect.
Design for the Chapel of the Resurrection, at Mirfield, near Leeds. Mr. Temple Moore, F.R.I.B.A., Architect.
Brick Ornament.

THE PLANNING OF HOTELS.

Now that design has popularly come to signify in most cases only the outward aspect of a building, people who have been accustomed to misapply that term in this way should note first of all, when they are dealing with hotels, that the inside of them is generally the most important part. In this they differ from churches, and still more from chapels, whose promoters say, if the outside can be shaped into the likeness of a church, the work may be as feasible, and therefore as cheap, as the committee see fit to allow. Why people go to a church, we none of us quite know; though why they put up at an inn, we can all conjecture.

We feel a sort of veneration for an old hotel, and most veneration for a really old one—say, of Chaucer's time, or a little before it. Anciently, a hotel and a hotel were two words of much the same meaning. But if the word is shorter by one letter than it used to be, it means more by many words than it did; and its architect is expected out of his own head to supply the deficiency. Few people will venture to give him information. Being an architect, the public take it for granted that he knows all the tricks of his trade, and woe to him, sooner or later, if he has missed any one of them. Of our ancient inns, the King's Head, Norwich, is one of the oldest which still remain. The King's Head, at Chigwell, Essex, may come next, being described in "Barnaby Rudge" under the name of the "May-pole." The May-pole, with more or less change, remains till today. The old inns in the Borough are gone, and only those of us who have some what long memories can remember them. There used to be many good inns in Norwich; perhaps there still are. There is no such thing as an hotel licence, properly so called. What is called a "temperance hotel" is an hotel or inn with no license to sell excisable liquors. Pictorial signs originated mostly in old titles and old coats of arms, as the Pig and Wassail, which, in time, was converted into the Pig and Whistle. Generally, there are three classes of hotels—viz., Presidential hotels, Commercial hotels, and Family hotels. The Residential hotel is used as a dwelling-place for families whose place of abode it is for weeks, and months, or even years. In the Commercial hotel there should be a feeling of comfort for the occupants; but lavish and expensive fittings would be out of place. Separate tables must be provided in it for correspondence, and a sufficient supply of guides, directories, and the like. The Rail-

way hotel is for the travelling public, who have only to walk from the train into their rooms, and so can easily avoid costly cab-fares. Their luggage is brought in with little expense by railway-porters. The function of an hotel is all-important, and should be settled with its future architect when or before he is definitely appointed. A Commercial hotel should be in the centre of commercial life, and it may well be located in the midst of theatres, clubs, and of fashionable life in general. This, of course, does not apply to hotels in health resorts, which, with more isolation, have a greater chance of success. The usual accommodation of the modern hotel is much as follows. On the ground-floor: 1. Lounge, or winter-garden. 2. Dining-rooms, restaurant, coffee-room, with services attached. 3. Reading-room and writing-testing-room. 4. Small drawing-room. 5. Smoking and billiard-room, with bar attached. 6. Ball-room, with reception room attached. 7. Office and manager's room. 8. Men's lavatory and cloak-room. 9. Ladies' retiring-room and toilet-room. In the basement: 1. Kitchen and kitchen offices. 2. Dining-rooms for the staff. 3. Servants' hall. In addition, one or two private rooms are wanted as private dining-rooms, and in the country a large hall for public banquets and meetings is necessary with a separate service and a separate kitchen.

In large hotels, a separate barber's shop is often found useful, with office, lift, and separate entrance. A café is sometimes thought desirable, as at the Savoy Hotel; but this, in Continental hotels, is a regular feature. In Eastern hotels, a bazaar should be arranged, to afford shelter from the sun, and a comfortable lounge. The upper floors are generally devoted to bedrooms, bathrooms, w.c.'s and service-rooms, of which there should be one on each floor, fitted with sinks, hot-plates, etc., in direct communication with the kitchen, adjoining which the lifts to carry coals, etc., should be arranged.

As far as possible, the ladies' and gentlemen's w.c.'s should be kept apart, and cut off from the main corridor by a ventilated lobby. Lavatories for both sexes should be well separated and not too obvious. In commercial hotels a separate entrance, with office and lift, is desirable.

The manager's office need not be a large department, but should be near the main entrance, and should include reception, inquiry, and cashier's offices, and offices for letters and keys. Mr. Stanley Hamp's address to the R.I.B.A. on hotel-planning

was illustrated by plans of the following hotels, viz.: the Grand Hotel, Paris; the Savoy Hotel, Strand, London, W.C. (Messrs. T. E. Collett and Stanley H. Hamp, architects; ground plan, first-floor plan, and second basement plan); Hotel Cap Town (ground plan and basement plans, showing verandahs); the Hotel Ronda, Andalusia; the Hotel Russell, Russell-square, W.C. (ground and first-floor plans, ground plan, and basement plan); Imperial Hotel, Russell-square; the Burlington Hotel, Epscombe; the Grand Hotel, Jersey; the Hotel Reina Cristina, Algeciras. There were plans of the basement, ground floor, and first floor of the Hotel Great Central, London.

Sandries and General Points.—Whereabouts to place the kitchen—in the basement or on the topmost floor—used to be a vexed question before electric-propelling fans came to the front. But the most convenient place, it is now agreed, is near to, or just below, the dining-room. If the flies on an upper floor are too short, it is now generally agreed that the kitchen should be on the same floor as the principal dining-rooms, or just below them; and larders cannot be kept so cool on a top floor, nor any of the general rooms and stores pertaining to the kitchen department. The kitchen may be said to be divided into five working parts—namely, past, sauce and entree, vegetables, and fish. Ice and ice-making often follow on to the poultry and confectionery, simply because that sort of work makes the flies; but as there is always some wet from the mangle ice, Mr. Hamp thinks it better to place it beyond the kitchen and larders. The plate-cleaning, knives, and general scullery should be close to the service-rooms. The fish-larder and fish should be far from the vegetable-kitchen, so that the copper and other utensils can be quickly cleaned and returned to the kitchen. The chefs' room should be as near the kitchen as possible, and also close to his *louis d'œuvre* and principal stores.

A place must be arranged for kitchen coals; a chefs' store for soap, coals, salt, utensils, and the like; a cooks' room, dressing-room and lavatory, servants' hall, steward's room, waiters' dressing-room and lavatory, and where women or kitchen-maids are employed, a women's dressing-room and lavatory. Windows and beer cellars, with platform lifts or stairs, are generally near the kitchen offices. To prevent articles from being stolen or "lifted," Mr. Hamp advises doors to shut off each corridor which encloses the kitchen department, the larders, etc.

Resurrection. The Gatehouse tower in the centre of the main building, overlooking the quad, has a richly treated criel in stone, giving an air of monumental importance in contrast with the more severely managed side-wings, suggesting, nevertheless as they do, a sense of hospitable comfort and restfulness. A range of dormers round the garth follow precedent, and look pleasing enough. The chapel has not yet been added.

Before reverting to the church work, which is grouped together chiefly on this same main wall of the gallery, there are a few commercial buildings to be mentioned, such as the Atlas Insurance Offices at Birmingham (1748), and the Prudential Assurance building at Grimsby (1747) by Mr. Paul Waterhouse. The former is the more important of the two, and is designed with corresponding scale. We shall illustrate both shortly. Messrs. E. V. Harris and T. A. Moolie show some commodious premises in Duke-street, St. James's (1744), with a handsome facade, and also a first-rate model of their Glamorgan County Hall, Cardiff, showing the elevation to King Edward's-avenue. The appropriate design of this building is made evident, and the scale adopted is consistently adhered to, with tasteful detail enhancing the effect. Mr. Henry Tanner's design for Oxford Circus, already completed on the east side, is shown by a large perspective view looking down Regent-street (1742). Messrs. W. and E. Hunt exhibit a good facade in Mortimer-street, W. (1718), and a block of Business Premises in Doncaster High-street (1712) is by Mr. Sydney D. Kitson, M.A., of Leeds, who well understands how to invest a comparatively limited frontage with a broad, tastefully ordered Classical elevation having a colonnaded and recessed centre, the doorways being placed on the extremities of the frontage, and thus widening out the composition. Gresham College, by the joint architects, Mr. S. Perks and Mr. D. Watney (1543) is hung too high to be well seen, and there is no plan. The lower portion is rusticated with a segmental pediment above on the main front. Mr. S. Tatchell is adding a house to Harley-street (1858), and Mr. W. H. White is re-erecting another residence in the same thoroughfare (1750), in quite a successful way. No. 30A, Wimpole-street, is being brought up to date by Messrs. Baister Fletcher and Sons (1752) in a pleasing style. Mr. Arnold Mitchell is represented by his North-Western Polytechnic, Kentish Town (1749), and Prof. Charles Reilly has the women's wing to the Students' Club, Liverpool, shown in good detail (1754). A pleasing and delicately-managed colour sketch is sent by Messrs. Oliver, Leeson and Sons, of the Cemetery Buildings, in granite, for Whitley Bay, Northumberland (1667). It is hung on the line, and near to it is a Church Institute design (1668) of odd quaintness, by Messrs. Rogers, Bone, and Coles, which is rather good. There are not many interior treatments on view in the gallery; but the Hall at Ottershaw (1602), by Mr. David Richter, obtains a central position by the merit of its skill, both as a design and a picture in good colour.

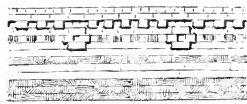
Among the churches to be named, there is the selected design for St. Luke's, West at Ottershaw (1676 and 1688), shown by two dashing-coloured perspectives from Mr. Charles Gascoigne's brush. A plan is added, showing a proper recognition of the needs of modern worship in buildings of its class. Messrs. E. E. Lofting and E. P. Cooper are the architects. St. Alban's, Chestwood, was built from the plans of the late J. S. Crowther, well known as a capable archi-

tect. The tower is now to be completed, and Messrs. John Gibbons and Son, of Manchester, show how this is to be done (1667) in a very clever and appropriate way. The Church of the Annunciation, Old Quebec-street (1671 and 1674) by Mr. Walter Tapper, is illustrated by two of Mr. Gascoigne's water-colours. They show a one-aisled nave, with groined ceiling, and a large east window of rich detail and good proportions, also a lofty clerestory rising above a bold and handsome stone arcade of traditional character. Flying buttresses occur over the aisle, and on the street side, to the south, the thrust of the vaulting, presumably, is taken by big vertical buttresses. There is a gabled turret at the east end of the north aisle. Brick is mainly used outside, and the church appears to be a work of much interest. Mr. H. A. Mateer exhibits the big details of Holy Trinity, Southampton (1673), which were illustrated in the BUILDING NEWS for Dec. 20, 1911. St. Margaret's Church, Upton, Norfolk, and St. Nicholas, Potter Heigham, Norfolk, are to be restored from plans by Mr. William Davidson, of Edinburgh, who shows some very nice drawings of them (1672 and 1679). Mr. Francis Doyle has but one exhibit, the Church of St. Barnabas, Messley Hill, Liverpool (1639), and the same with Mr. Fellows Pymme, whose interior of St. Martin's, Worcester (1647), serves to recall his former able church work. St. Faith's Church, Nottingham (1649), by Mr. E. A. Sudbury, and St. Andrew's, Cuslodon (1651), by Messrs. Greenaway and Newberry, are both excellent. As to Mr. Maurice Pocock's bird's-eye fancy sketch for an Abbey Church (1654), it is no doubt a freely handled, ideal conception, and certainly large, but hardly of good design. It is very different, any way, from Mr. W. D. Caroe's Church of Stanley St. Peter, Wakefield (1655) next below on the line. The Bernard Wilson Memorial Church, Milton, by Messrs. J. O. Scott and Son (1657-1675) is a typical building, thoughtfully detailed, and so is the Road Screen at Netheringham Church, well drawn also in pen and ink (1658), by Messrs. H. Bailey and D. Wood. The Congregational Church, by Mr. H. V. Wolstenholme at Fairbairn (1666) avoids pretensions, and looks suitable. The Baptist Chapel at Nottingham, by Messrs. Sutton and Gregory (1669), has much merit, for the same reason. A new Roman Catholic Church at Aylesbury is represented by some drawings of a design for it by Messrs. H. R. and B. A. Poulter (1670-1650), cleverly adapted to the sharp-angled site, and treated in a severe style. Uxalan Cathedral, with its forest of columns (1687), is shown by a perspective of the choir, having canopies over the stalls, and tie-rods to the arcades graphically drawn by its architect, Professor Beresford Pitt. The chapel of All Souls, Edgill Park (1698), erected from the designs of Mr. Maurice B. Adams, is represented by a pen-and-ink view, showing the brick-vaulted interior and stone arcades. The Lutheran Church, Port Elizabeth (1703), found a place, doubtless because it came all the way from South Africa. St. George's, Church, Madrid (1642-1686), of which Mr. E. I. M. Gibbs, of Shill-kill, is the architect; St. Benignus at St. Budeaux, Devon (1664), with its bold Western tower built the width of the nave, and its pleasing belfry, by Mr. W. D. Caroe; and Christ Church, Sutton, new tower and baptistry (1660), sent by the architect, Mr. Douglas G. Runk, all justify their position in the exhibition, in which we miss work by many well-known men who usually send.

BRICK ORNAMENT.—V.

GARDEN-WALLING, BALT-STEADING, AND OPEN TERRACE-WORK.

The above positions are several to which the systems of ornamentation previously described can be most satisfactorily adapted, that, too, with considerable improvement upon the majority of work seen around us to-day. Even the commonest garden-wall of the most elementary type might be turned into something largely picturesque by some of the most inexpensive methods, obviating any special cutting, or extra work, if complicated or elaborate patterns and combinations are not used in their construction. A little simple and carefully-set patterning—or raised and sunk work—often looks



Garden Walling with Relief Work and Mosaic Relief.

FIG. 1.

better than the more complicated designs, and such might undoubtedly be used with practically no increase in cost upon ordinary plain brickwork, in many instances. Walling to front and back gardens, to more pretentious boundary walls of the detached or country residence, are well worthy of more careful study in these respects than are usually deemed sufficient. They all form part of a general scheme of design—or, more properly speaking, should do. In country-house work "Brick Ornament" is readily adapted to many other branches of construction, especially when openwork patterns are utilised; such as, for terracing, garden pavilions, or summerhouse work, etc., it is specially useful, and these might usually be vastly improved thereby. If carefully studied, it might be introduced with many

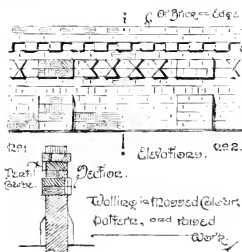


FIG. 2.

beautiful effects. It cannot really be argued in favour of the ordinary, blank, ugly, cast-iron, prison-looking boundary walls thrust on everyone in large cities and towns—particularly the workers—that such are imposed by a relentless necessity, on account of "cheapness," the first great essential. Such is not the case; it is really due to sheer ignorance, lack of knowledge, application, or work not being placed in the right hands. Further, any excuse is supposed to be better than none in such quarters. Regarding the illustrations to this article, the construction involved by some would prove not only as cheap, but in one or two cases, slightly cheaper, than solid walls, as there would be a considerable saving in bricks, mortar, etc., where the work extended over a large area—such as large blocks and many streets, as it often does in estate development. The

application, too, of a little alternated and carefully set out work at the top of high, or fairly high, walls, would be a great relief from a monotonous repetition and dreariness seen everywhere in the park, bank, and yet again

the atmosphere, too often has a corrosive effect on the mortar, which would still further weaken it. In all such positions the open-work coming and a few below should

introduce something of a heavier type, such as illustrated, for example, by Fig. 7, with broader piers between the openings and a heavier capping piece. Or smaller panelling, such as shown on Fig. 17, with about double or treble the panel spacing, as might be necessary.

For panelling of simple garden walling most of the designs illustrated previously in former

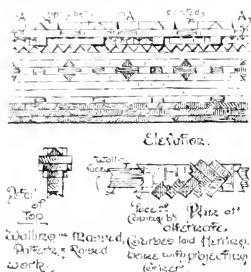


Fig. 3.

black, and so on to the extent of 10 ft.

There are several points which require careful consideration in the use of pierced brickwork. A certain amount of weakness being caused by the perforations, it therefore requires designing with intelligence for

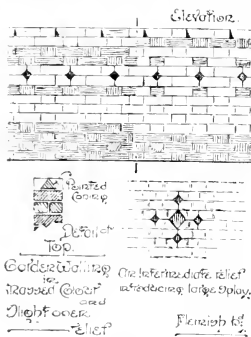


Fig. 4.

the part of a position it has to occupy. It is to be expected that such light and essentially garden work as shown by Figs. 3, 4, 5, 6, 7, 8, and 9, for instance, would be located in exceptionally exposed positions where they might be subject to occasional wear from cars, or heavy obstacles being driven in front of them. This often occurs with these residential boundaries adjacent to commercial premises, etc. In such positions a

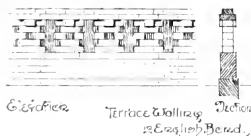


Fig. 5.

perforated work might be well enough provided, but it would require to be in local and more widely-spaced panels. The same applies to such work introduced at the top of high walls in very exposed positions, as to heavy walls, or on coast sites, where

always be set in an extra cement composition. For ordinary garden-walling, particularly suburban and country work, or terracing, it would be quite safe and sound in any good average cement mortar, especially

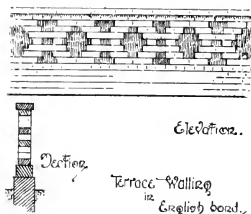


Fig. 6.

with the perforated panelling introduced between a couple of good solid angle-blocks, varying from 2ft. or 3ft. or more, as circumstances might require. A fairly wide wall

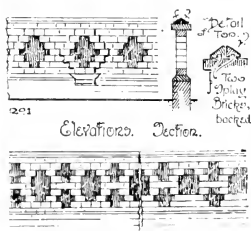


Fig. 7.

space on each side is also preferable, as giving a greater relative value to the panelling. As such work, however, approaches more exposed situations it has to be utilised with greater discrimination, by



Fig. 8.

articles can either be readily adapted or partially so. These can be applied either in pure line and pattern relief alone, or with a little occasional raised and sunk work as well, picking out certain features, or by forming another alternated pattern at fairly wide intervals, thus producing simple combined patterns in three or four methods, with a massed colour plinth, something after the style illustrated by Fig. 1. This, like most of the previous designs, can be easily executed in the regular bonds, requiring no variation of same or cutting. Fig. 2 illustrates a fresh composition, with the pointed coping brick, using the splay bricks as steps. A slight variation of bond is required here to pick up the coursing; but this can be readily arranged by the use of Queen closers, and

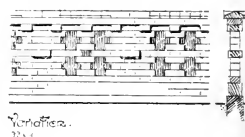


Fig. 9.

thus debate cutting. Fig. 3, as shown, would require a little occasional cutting with the coping and alternate pointed dentil course; but even this could be dispensed with by studying the coursing out a little more and by producing a slightly more elongated pattern. The pointed dentil course above the pointed coping bricks is formed by the projected corners of bricks laid herring-bone fashion—a style used in 18th and early 19th-century work, although not to a very large extent. Latterly it seems to have gone quite out of "fashion," being rarely used at

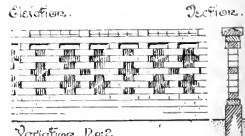


Fig. 10.

present. Its chief objection when used, as seems to have been the custom, on a long, continuous course, is that it becomes somewhat monotonous. If alternated at all, it required a good deal of expensive cutting in making up the interior bond of the wall. A great deal of this—in some cases, all of it—could be dispensed with by using the splay-bricks for such making-up purposes. The herring-bone dentil is a very handy form for obtaining a little ornamental effect with an ordinary square edged brick; being readily

adapted, easily arranged and set, can be used for many positions. Fig. 4 illustrates a design adapting the small chamfered brick. This has not been illustrated

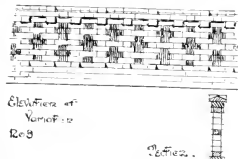


FIG. 13.

previously; but by its use a far finer form of pattern relief is obtainable than by means of the larger species of moulded bricks illustrated before. It is worthy of particular note on this account, as it could also be utilised for raised and sunk work, although with the latter it involves a specially-cut piece of a half-brick, rubbed on one face. The pattern given by it is very neat, and it would be well worth this little extra trouble for many positions where a little finer pattern-work would be preferable, particularly in conjunction with the intermediate relief shown on the same figure. The next illustration, as will doubtless be observed, shows the adaptation of the double-cross pattern to

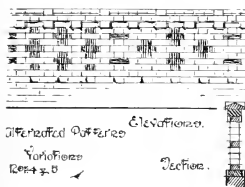


FIG. 14.

open work, seen previously by the other methods in former chapters. It should illustrate clearly enough how the majority of former patterns may be readily adapted to this method of ornamentation also, forming quite a different style, producing a totally different, and, at the same time, exceedingly picturesque, effect. It should be needless to observe that such work is preferably constructed in 9in. depth, although in some few cases, perhaps, a little could be arranged with open-work patterns in 4½in. walls, set in cement, where the cost might prove very essential. The latter size walls could be combined with occasional 9in. piers also.

Fig. 6, for instance, requires 9in. work, whilst something after the style of Fig. 7 would be pretty sound in 4½in. A variation from the well known diamond pattern is illustrated by Fig. 8, producing quite a nice piece

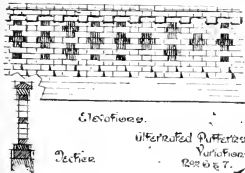


FIG. 15.

of ornamental work when broken occasionally with blank wall-space or studied pier-angles, etc. The first illustration on Fig. 9 shows another variation of the same pattern,

producing a stronger alternated panel with raised work. The second and third variations on this figure illustrate other designs for light walling of a similar character. With either of the last three or four patterns, greater strength would, of course, be given by increasing the width of the

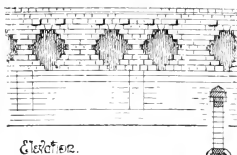


FIG. 16.

brickwork between the openings, and forming slightly deeper capping courses, where such might be necessary. A combination of pairs, or a group of three diamonds, after the style shown by Fig. 9, with equal wall-space between, corresponding to the panneling, would really form a very strong wall in cement, quite suitable for most purposes, from this point of view. The same principle applies to the other designs also. Figs. 10 to 15 illustrate continuous masses of varied patterns of somewhat similar design, but producing quite different effects, combined with walling of different degrees of stability, as will be seen. Such points require careful noting with regard to application according to sites, etc., as previously alluded to. This sequence of patterns illustrates clearly

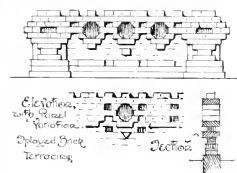


FIG. 17.

enough how others on similar lines may be arranged and varied considerably in the production of different designs. Fig. 16 also illustrates how quite different effects are obtainable by even slight variations in the diamond pattern and by different grouping, etc. By introducing the linked panel, for example, combined with raised and sunk work, played or moulded bricks, quite a different style of design is again obtainable, as shown by Fig. 17. Of a somewhat similar

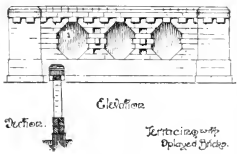


FIG. 18.

type is the design illustrated in Fig. 18; but by using the splay bricks in pairs a longer diagonal line is produced, thus giving another and quite different spirit or character to the work. With this branch of "brick ornamentation" again, there are possibilities of considerable development beyond the few designs illustrated here. The moulded brick, especially, is particularly adapted to

such work. With periodical panneling, of course, no special filling or contrivance required, as in the case of solid wall work. Used as a pannelled frieze course, for instance, around a garden pavilion or summerhouse, in combination with raised and sunk work and panneling, not only exceedingly picturesque results are possible, but some really beautiful work of this nature might be executed. Another position to which it could very well be adapted and introduced with advantage would be in louvers, etc., which might either be glazed or, if used for ventilating purposes, fitted with louver boards. So used for openings in turrets or towers on various buildings, many novel features could be introduced, both original in design and ornamental. W. G. KERRY, Architect.

(To be continued)

THE ANNUAL REPORT OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual report of the Council of the Institute for the official year 1911-12, submitted at the meeting held on Monday evening, states that the losses by death have been as follows:—Hon. Fellows: Sir Francis Sharp Powell, Bart.; Fellows: Henry Bloomfield Bare, Francis Sadler Breton, William Glover, Alexander Graham, William Henry Hill, George Gordon Hoskins, Francis William Humphreys, Robert John Macbeth, Duncan McNaughton, Dr. John Samuel Phene, James Pigott Pritchett, George Ransome, William Forrest Salmon, Charles Smith; Retired Fellows: Frederick William Albury, Elijah Hoole, James Radford; Hon. Associate: Edwin Austin Abbey, R.A.; Associates: Sydney Bridges, John Codd, William King Lucas, John Bevan Phillips, William C. Poole, Thomas Miller Rickman, Henry Shackleton, Licentiate: John Davidson; Harry Edward East, Gascoigne Hastings Fowler-Jones, William Pichels, Edward Ashby Smith, Wilfrid Travers Wain; Honorary Corresponding Members: Fernand de Darlein, Pierre Jerome Henré Daumet, Alexander von Wieleman.

The Royal Gold Medal was awarded last year to Dr. Wilhelm Dorpfeld, F.S.A., in recognition of his eminent services to architecture through his archaeological researches. It has been decided to award the Medal this year to Mr. Basil Champneys, F.S.A., in recognition of the distinguished merit of his executed work in architecture; the Medal will be presented to Mr. Champneys at the general meeting on June 21.

The following tabular statement shows the present subscribing membership of the Royal Institute compared with corresponding periods of 1909, 1910, and 1911:—

Year.	Fellows.	Asso- ciates.	Hon- orary.	Total.
1909	888	1,334	46	2,278
1910	874	1,431	48	2,353
1911	862	1,329	50	2,241
1912	850	1,381	50	2,281

During the official year since the last annual general meeting, 12 Fellows have been elected, 108 Associates, and 2 Honorary Associates. The Council have decided to consider the situation which arises from these figures. The period for the election of Licentiates has been extended to the end of June, 1912; at the present moment a total of 1,834 Licentiates have been elected, and many other applications are under consideration. Since the publication of the last annual report the Council have admitted the Northamptonshire Association of Architects into alliance with the Royal Institute.

In the last annual report the Council outlined the steps that had been taken to secure united action by the Royal Institute and the Society of Architects in advancing the policy of Registration. Legal and constitutional difficulties made it necessary to lay before the members a proposal to obtain the Privy Council's sanction for a Supplemental Charter and By-laws conferring the necessary powers on the Royal Institute. The Council's proposals for this purpose were

had before a special general meeting on January 8, 1912, and an amendment was carried referring them back to the Council for further consideration. The Council at once appointed a strong and representative Registration Committee to consider and report upon the question, and this committee is now actively at work under the chairmanship of Mr. John Slater.

In the new Copyright Act, 1911, the privilege of artistic copyright are for the first time extended to works of architecture. The Board of Professional Defence have held a number of meetings, and have given advice to members on questions of a legal nature. They have given attention to several recent judicial decisions which have appeared to enlarge the legal responsibilities of architects, and the possibility of safeguarding their position against "liability" unforeseen dangers is being carefully considered. The Professional Questions Committee have considered a number of cases referred to them from time to time, and have advised the Council upon them. The Council are now considering the advisability of drawing up and publishing a code of professional ethics for the guidance of members. The Council have been engaged for some time upon the revision of the schedule of charges. The Councils of the Allied Societies in the United Kingdom have been consulted in the matter, and it is hoped that the draft will be ready for submission to the general body at an early date. During the past year this committee has been in communication with the Allied Societies with the object of bringing architectural opinion to bear on the urban planning schemes that are being prepared throughout the country. It has already prepared and published a pamphlet for the guidance of promoters of such schemes.

The Henry Jarvis Bequest is now in the hands of the residuary trustees, and the Council have advised them, under the terms of the will, to apply the available income to the foundation of Jarvis Studentships at the new School of Architecture at Rome (in which the Institute is represented by Messrs. Reginald Blomfield and J. W. Simpson). If the Council's proposals are accepted there will be an annual examination for the studentship, which will be open to all Students and Associates of the Royal Institute of British Architects under the age of 50 years, and one studentship will be awarded every year, of an annual value of about £150, and tenable for two years. Reference is made to the recent establishment of a new British School at Rome.

The Joint Committee on Reinforced Concrete has compiled and published a second report on reinforced concrete. It has also considered the London County Council's draft Regulations for Reinforced Concrete Construction, and has reported upon them to the Council, who have submitted various criticisms and suggestions to the Local Government Board, whose sanction is required for these regulations.

The Progressive Examinations were held in June and November, 1911. The Preliminary was held in London, Bristol, Leeds, Manchester, and Newcastle-on-Tyne; the Intermediate in London, Bristol, Leeds, Manchester, and Newcastle-on-Tyne. The Final and Special Examinations were held in London, and the Special Examination for Colonial candidates in Johannesburg, Sydney, and Toronto. Results are shown in the following tabulated form:

Preliminary Examination			
Admitted.	Exempted.	Examined.	Passed.
201	81	160	124
Intermediate Examination			
42	1	43	107
Final and Special Examination			
249	235	115	120

The Ashurst Prize was awarded to Philip Deben Hepworth, who passed the Final Examination in November, 1911.

Since the issue of the last annual report the Council have appointed the following members to represent the Royal Institute in committees in connection with the various bodies indicated.

The Council of the re-constituted British

School at Rome, Mr. Reginald Blomfield, A.R.A. (F.), and Mr. John W. Simpson (F.).

Incorporated Joint Committee on Water Regulations, Mr. Max Clarke (F.).

Third International Congress for Sanitary Buildings, Mr. Raymond Paxon (F.).

Deputation to confer with Sir George Reid, High Commissioner for Australia, re the Australian Capital Competition, Mr. Leonard Stokes (F.), Mr. Henry T. Hare (F.), and Mr. H. F. Lancaster (F.).

Council of the International Smoke Abatement Exhibition, Mr. Edwin T. Hall (F.).

Conference with the Lord Mayor on the future of the Crystal Palace, Mr. Wm. Woodward (F.) and Mr. Edwin T. Hall (F.).

The Royal Sanitary Institute Congress, York, 1912, Mr. Edwin T. Hall (F.) and Mr. John Slater (F.).

Smoke Abatement Conferences, Manchester, Mr. Percy Worthington (F.) and Mr. Edgar Wool (F.).

Conference with representatives of the English Forestry Association, Mr. Alan E. Munby (A.), Mr. Eustace Hall (F.), and Mr. Max Clarke (F.).

100th Anniversary of the University of Liverpool (three years), Mr. Henry Hartley (F.).

Inaugural Meeting of the London Society, Mr. H. W. Wells (A.).

National Conference on Details of Town Planning Administration, Mr. Raymond Unwin (F.).

250th Anniversary of the Foundation of the Royal Society, President for the time being.

Council for the National Registration of Plumber, Mr. H. D. Seares-Wood (F.).

Since the issue of the last annual report the Council have made the following grants:—Library fund, £150; Architectural Association, £100; Architects' Benevolent Society, £100; Architectural Association Sketch Book, £25; Royal Architectural Museum, £21; British School at Rome, £21; British School of Archaeology (work in Egypt), £10; and Incorporated Joint Committee on Water Regulations, £5 is.

The Competitions Committee have had under their consideration the conditions issued by various promoters, and in cases where the conditions have been unsatisfactory, the promoters have been communicated with and urged to modify them. In the case of the competitions for the Australian Federal Capital, Oakeside-accused Council, and the competitions for the Blackwood Hall, the committee's efforts to obtain satisfactory amendment of the conditions having been unavailing, the Council have warned Members and Licentiates not to take part in them. The following have been the President's nominations to Assessorships during the official year:—

Technical Institute, Cardiff, Mr. James S. Gibson.

New Fire Brigade Station, Cardiff, Mr. A. Marshall Mackenzie.

School Dovercourt, Mr. Paul Waterhouse.

New Hospital, East Sussex, Mr. Edwin T. Hall.

Church, Felixstowe, Mr. Gerald C. Horsley.

Enlargement and Alterations of Public Offices, Harrow-on-the-Hill, Mr. William Flockhart.

School, Newcastle (Walker Gate), Mr. John Wilson.

New Baths, Northwich, Mr. F. T. Bagallay.

Parish Church, Nottingham (Carrington), Mr. E. S. Prior.

Baptist Chapel, Nottingham, Mr. Herbert W. Wells.

New Council Offices, Portland, Mr. A. Needham Wilson.

New Infirmary Buildings, Stockport, Mr. Herbert W. Wells.

Elementary Schools, Wallsend-on-Tyne, Mr. A. S. Cross.

New Buildings for Children, Willesdon, Mr. A. W. S. Cross.

The President accepted an invitation from the Government of Manitoba to act as Assessor in the competition for the new Legislative Buildings in Winnipeg.

REPORT OF THE BOARD OF ARCHITECTURAL EDUCATION.

Mr. Reginald Blomfield has acted as chairman of the board, Sir Aston Webb and Mr. Lewis Solomon as vice chairmen, Messrs. Ernest Newton and John Slater as honorary secretaries. In November, 1911, the Council approved of a recommendation of the board that the Slade Professors of Fine Art at the Universities of Oxford and Cambridge, and Professor A. Beresford Pite, of the Royal

College of Art, should be invited to become advisory members of the board, and the board's invitation was accepted by these gentlemen. The board has drawn up a detailed scheme, which has been approved by the Council, for the examination of Licentiates desirous of becoming Fellows, and the first examination will be held at the end of June. The examiners appointed to conduct the first examination were:—Mr. Reginald Blomfield, A.R.A. (chairman of the board), Sir Aston Webb, C.B., C.V.O., R.A. (past president), and Mr. Henry T. Hare (hon. secretary). The board has had under consideration a revision of the syllabus of the Intermediate and Final Examinations. Many important modifications therein have been made and approved by the Council. A scheme of problems in design has been instituted to take the place of the old Testimonies of Study for the Final Examination, and the first sets of drawings were submitted for the approval of the board at the end of February. Other designs will be sent in every two months, and each candidate for the examination is required to submit four of such approved designs as Testimonies of Study before being admitted to the examination.

The Allied Societies are co-operating with the board in carrying out this scheme by examining the designs in their respective localities. Eighteen sets of designs for the first subjects set by the Institute have been received by the board, and eight of them have been approved. The board has selected some of these approved designs and has sent them to the Allied Societies as examples of the standard of the studies in answer to the design problems. The various alterations in the examinations will come into operation in November next. The board has recommended the Council to require that the work of students at the recognised architectural schools who claim exemption from the Intermediate Examination shall have been examined and approved by an external appointing authority by the school, such appointments having been previously approved by the Council. This recommendation has been approved by the Council, and a communication embodying this decision has been sent to the heads of the various universities and schools. A committee of the board, appointed at the request of the Council, has drawn up a scheme for the award and tenure of a Scholarship in Architecture at Rome, instituted by the Commissioners of the 1851 Exhibition, and the scheme has been approved by the Commissioners. The board draw special attention to the valuable new studentship which the "Jarvis Bequest" has enabled the Institute to found. A scheme for this studentship has been drawn up by a sub-committee, and has been approved by the board and forwarded to the Council.

REPORT OF THE ART STANDING COMMITTEE.

Mr. Ernest Newton, A.R.A., has acted as chairman of this committee, Mr. W. Flockhart as vice-chairman, and Messrs. W. Tapper and Mr. W. A. Forsyth as honorary secretaries. The committee recorded with satisfaction the successful issue of their efforts on behalf of the "Great Almshouses at Shorehitch." The recommendations of the Council on the subject of the new St. Paul's Bridge were adopted by the City Corporation, and expert advice was taken on the whole matter. The subject of the uniform treatment of street name-plates in London has been further dealt with, and the Council of the Royal Institute have obtained an expression of opinion on the matter from borough and city councils in London. These opinions, although not unanimously in favour of a uniform treatment, were generally sympathetic. Representatives of all the civic authorities of London have been invited to a conference to be held on the Institute premises, to discuss the matter. The committee's inquiries were directed towards the matter of the English bridge at Rome. The Corporation of that town have decided to widen the bridge, and not to replace it with a new structure. The threatened demolition of an

extremely interesting half-timber house in the same town is now engaging the attention of the committee. The committee have been engaged upon the consideration of the injurious effect of public hearings upon English landscapes. At the suggestion of the committee, the Council expressed its approval of the efforts made in this direction by the New Malden, Surrey, District Council, and the "Selling of the Air." Abuses of Public Advertising invited the Royal Institute to criticise and make suggestions upon the Bill, which it is about to promote in Parliament, to extend the existing Advertisements Regulation Act. The art committee recommended the Council to lend the weight of their general support to the measure. The sale of Tattersall Castle manor, and the subsequent removal of the stone mantelpiece, once again raised the question of the necessity for adequate legislation for preventing such regrettable occurrences. The National Trust for Places of Natural Beauty invited various societies to discuss the question. A conference was held which the President of the Royal Institute and a representative of the art committee attended. A draft measure extending the powers conferred by the existing Ancient Monuments Act was prepared and is now presented to Parliament. The recent proposal made by His Majesty's Government to decentralise the Department of Archaeology in India was considered by the committee to be detrimental to the effective control and the preservation of the ancient monuments of that country. A memorial was forwarded to the Secretary of State urging that no change be made in the existing organisation. It is gratifying to record that this view of the matter has been adopted by the Government. The intention of the trustees of the Corsham Almshouses, in Wiltshire, to dispose of their property, on the ground that the income is insufficient to meet the cost of maintenance, was brought to the notice of the committee. A good deal of expert, practical information was obtained and laid before the Council. The secretary of the Royal Institute was asked to write to the Charity Commissioners that the Council hoped that no alterations would be made to the existing buildings.

REPORT OF THE LITERATURE STANDING
COMMITTEE.

Mr. Edward Warren, F.S.A., was elected chairman of this committee; Mr. Charles Sayer, vice-chairman; Messrs P. Leslie Waterhouse and Theodore Fyfe, honorary secretaries. The recommendation of the committee, adopted by the Council, that the Webb drawings at Worcester College, Oxford, should be photographed has been now carried into effect. Mr. Gutch, who undertook the selection of the drawings to be photographed, has also prepared a catalogue of this important collection. A sub-committee has been appointed to consider the question of the value of the collection of the library for fire insurance, as well as a scheme for providing more adequate safeguards for the protection of the library against fire. During the twelve months ending March 31 of the present year, 574 volumes and 66 pamphlets have been added to the library of the Royal Institute, exclusive of periodicals, reports, and Transactions of societies, and parts of works issued in serial form. The number of works presented was 458 volumes and 66 pamphlets. The number of books purchased comprised 116 volumes, of which 42 were added to the loan library. The attendance of readers in the reference library numbered 5,554. The number of books issued on loan was 3,756.

REPORT OF THE PRACTICE STANDING COMMITTEE

The chairman of this committee is Mr. H. D. Searles-Wood; vice-chairman, Mr. Wm. Woodward; and honorary secretaries, Messrs. Herbert A. Satchell and Matt. Garbutt. Since the date of the last annual report, but prior to the end of last session, the sub-committee which had been engaged on the question of revising the schedule of charges presented their report. The pro-

posed new schedule drawn up by them, after being carefully considered by the committee, was forwarded to the Council with an urgent recommendation for its adoption at as early a date as possible. The proposed new schedule is now receiving the consideration of the Council. The importance of removing some of the admitted deficiencies of the existing Conditions of Contract, and of the existence of the large number of difficulties arising in practice which have been brought before the committee, at least one-third have dealt with questions of professional charges. As an outcome of many difficulties experienced by members, arising out of the use of the R.I.B.A. Conditions of Contract, of recent years, the existence of a number of anomalies under these Conditions, and of certain suggestions made by Messrs. Edwin T. Hall and Max Clarke, the Council referred to the committee the question of the advisability of amending the existing Conditions of Contract, and especially the clauses dealing with P.C. amounts and provisional sums. The committee appointed a sub-committee to deal with the matter. During the session of 1925 a very large number of additional difficulties arising out of the existing Conditions have been brought before the committee, and these have in most cases been referred to the sub-committee. The committee have recommended to the Council the desirability of obtaining a legal opinion on the relative merits of the existing Conditions and the liability under the Statute of Limitation. This has only just been received, and is now being considered by the sub-committee. It is hoped that the complete report of the sub-committee may be presented by the end of the session. It having been brought to the knowledge of the committee that the London Association is endeavouring to draw up a form of contract for use by contractors and sub-contractors, a special meeting of the committee was held, at which a deputation from the association was invited to be present. The chairman, secretary, and several members of council of that body accordingly attended. They explained the difficulties at present existing in regard to the use of the standard form in which they were trying to overcome them. A general discussion followed, in which a useful interchange of views took place.

REPORT OF THE SCIENCE STANDING
COMMITTEE

Mr. ALAN E. MUNBY was elected chairman of the committee. Mr. J. H. FARNSWORTHY, chairman, and Messrs. Wonnacott and Digby Solomon honorary secretaries. In the last annual report of the Science Standing Committee reference was made to the draft of a uniform scheme for preparing the necessary particulars and calculations for skeleton-frame buildings to be submitted to district surveyors for the provisions of the various regulations. It was pointed out that during the year that has passed, this scheme has been fully considered, and the committee have now finally approved the suggestions of the District Surveyors' Association governing the deposit of drawings and calculations with district surveyors in connection with skeleton-frame buildings. These suggested regulations have been published by the District Surveyors' Association, and follow in a cheap and handy form the requirements of the latest Act, explanatory particulars of the formulae and symbols to be employed, working stresses, weight of materials, load tables for standard sections of beams and stanchions, and diagram sheets on which may be put the calculations in detail for easy reference. The committee have recommended the Council at the close of last session to their effort of the committee to promote research on materials in matters affecting the profession has led to correspondence with the Imperial Technical College and interviews with the Rector and professors. It was found hopeless to expect State aid to further the work of the committee; but assistance would be afforded by the Imperial Technical College, as the leading technical institution, if some scheme of study and research could be agreed upon. The draft of a scheme pre-

pared by the College has recently come before the committee, and is now under their consideration. The report and data of the series of tests of mortar, which extended over two years, has now been published under the auspices of the Science Standing Committee. The issue of the monograph, "Notes on the Properties and Ingredients of Commercial Portland Cement," by the Science Standing Committee, has been amply justified by the large sale of copies. A movement initiated by the English Forestry Association to promote the use of home-grown timber and foster the industries connected with it led to a conference on February 20 last between the representatives of that body and four delegates appointed by the R.I.B.A. Council. A conference of this kind has never before resulted after inquiry and correspondence, in the Institute ceasing to be represented on the Incorporated Joint Committee on Water Regulations. Among minor matters dealt with in the course of the session, on which advice has been sought or which are still under investigation, are: Defects in roofing tiles, particularly machine-made tiles; the use of close jointed tiles on decayed stonework; corrosion of pipes and tanks by morland waters; South African marbles and building stones; and decay of lead dressings on roofs.

FINANCE

The income and expenditure accounts of ordinary funds for the financial year, as prepared by a firm of chartered accountants, shows a total expenditure of £13,975 14s. 9d., and a deficit for the year carried to balance-sheet of £2,161 7s. 7d. Rent, it appears, absorbed £1,740 5s., and salaries £2,733 5s. 8d. The examination reports cost £331 5s. 10d., and the receipts from examiners' fees £1,450 8s. The production of the Journal and Kalendar cost £2,568 9s. 3d., and the receipts from sales and advertising were £1,680 17s. 2d. The contributions to allied societies represented an outlay of £449 3s. 6d., and special grants £441 15s., while under extraordinary expenditure the chief items were the Town Planning Conference, £1,675 16s. 9d. The honorary auditors, Messrs. John Hudson and W. H. Burt, in their report, point out that this last-named item was the principal cause of the year's deficit, and add: "It is our opinion that, provided no exceptional expenditure is incurred, there should be a substantial excess of income over expenditure for the year 1912 and subsequent years." They should, however, be strictly to the reduction of the loan from the bank which was negotiated in the year 1911 for the purpose of paying the expenses in connection with the alterations and additions to the premises and the Town Planning Conference. In the account there are the following items of expenditure:—Mortar tests, £113 3s. 9d.; concrete report, £67 11s.; dinner at the Elms, £10 10s.; and a sum for legal charges. We are of opinion that, as there is a large overdraft on the bank, such expenses in future should be restricted."

THE THEORY AND PRACTICE OF
HEATING AND VENTILATION.*

This elaborate treatise, of some seven hundred pages, is a welcome attempt to explain in detail the application of scientific principles to the chief problems with which the heating engineer has to deal, and further to indicate the limits within which these principles are applicable in practice. Neither description nor criticism of practical details of construction is attempted. These, as Mr. Barker truly says, "can only be learnt by actually handling the things themselves."

Most of us, we can say, have found the heating and ventilating engineer a bit of an empiric. What we mean is that he does not seem to understand the discrepancies between theory and practice, which are more difficult to account for in his work than in most other

The Theory and Practice of Heating and Ventilation. By A. H. BANKIN, B.Sc., B.A. (London). London: The Caxton Press, 119, Strand, W.C.

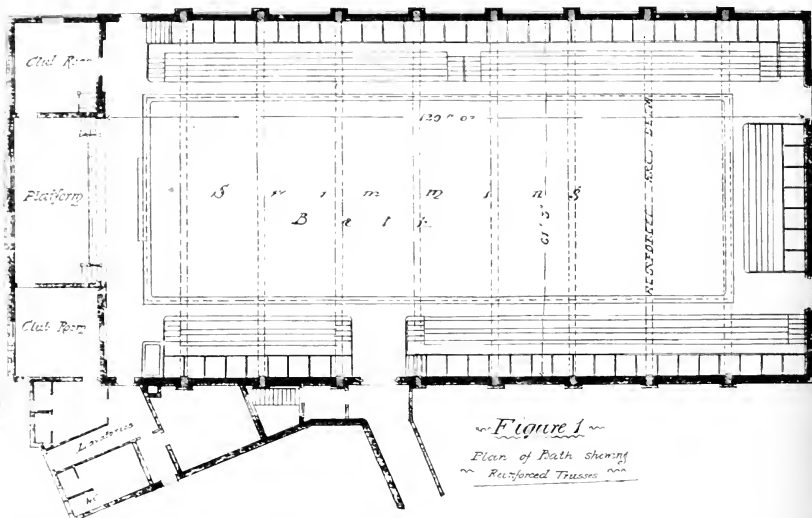


Figure 1
Plan of Bath showing
Reinforced Trusses

known branches. He certainly may plead that two of his textbooks help him much. The results of most experimenters have been so divergent that it is often difficult not merely to reconcile them, but even to deduce from a comparison between them any approximate rules for the practical man's guidance. If he determines to think for himself, he will search in vain for real light on such subjects as the flow of fluids, the conduction of heat, the theory of fans, and even the principles of the ordinary low-pressure circulation of water and air. He will get in very great measure the help he wants in Mr. Barker's book, which is the result of years of labour and research. Such matter, for instance, as we get in Chapters XXII. and XXIII., going, as far as we know, for the first time the geometrical proofs of the principles of the theory of hot-water pressure and the method of pressure diagrams, is most valuable. So also is the author's simplified form of Rietschel's method of determining pipe sizes. English textbook compilers seem to know nothing about Rietschel's work, or to have been frightened by its minuteness of detail.

Obviously against his will, Mr. Barker is obliged to stick to the usual units—the pound, the foot, and the inch, which are not quite so much an "absurd tangle" as he calls them, and which "for good," not "ill," we trust are likely to remain with us. That tons, and heights, and children, etc., ought to be sent away, along with rods, poles, and miles, we heartily agree, and we second his appeal to heating engineers not to tolerate such in practice, except where contact with other trades compels them.

REINFORCED CONCRETE BUILDINGS.

By Wm. G. SHIPWRIGHT, Licentiate R.E.B.A., M.C.I., and Chartered Building Surveyor (by examination).

CROYDON PUBLIC BATHS.

By George F. Carter, M.I.C.E., Architect and Engineer.)

The design is a very satisfactory example of the introduction of reinforced construction into a plain form, in combination with the various forms of construction, and a lofty 120 ft. long and 6 ft. 3 in. wide in the clear, is necessitated by these means to

a simple design in which the constructional drawings it will be seen that the reinforced work is constructed entirely independently of the walls, and is self-supporting.

The width of the arch beams is 15 in. throughout, and the reinforcement of the vertical portions of the construction, which are built into the walls, is shown in section

drawings it will be seen that the reinforced work is constructed entirely independently of the walls, and is self-supporting.

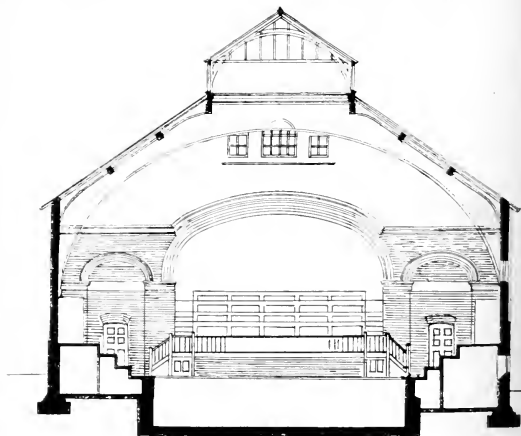


FIGURE 2

correctly, and the reinforced work is introduced in the eight arch beams which span the bath from wall to wall and the purlins supporting the roof across the 14 ft. spans between the main beams. Fig. 1 (plan) and Fig. 2 (section) show the general arrangement of the bath and the disposition of the main beams and purlins, which are illustrated in detail in Figs. 3, 4, 5, 6, 7, 8, and 9. From an examination of these

drawings it will be seen that the reinforced work is constructed entirely independently of the walls, and is self-supporting.

Additional reinforcement is introduced at a height of about 6 ft. from the floor and 12 ft. from the foundation level, consisting of five 1½ in. Kahn bars, placed two on the outside and three on the inner side of the arch, 9 in. from the soffit and extrados respectively. This reinforcement is further augmented 5 ft.

Left-Hand Side.

B			C			D		
Added load.	Total load.	Deflection.	Added load.	Total load.	Deflection.	Added load.	Total load.	Deflection.
cwt.	cwt.	inch	cwt.	cwt.	inch	cwt.	cwt.	inch
7.0	cradle	zero	6.0	cradle	zero	8.0	cradle	zero
6.0	13.0	.00	8.0	14.0	.00	14.0	22.0	.00
7.0	20.0	.10	6.0	20.0	.10	10.0	32.0	.10
7.0	27.0	.00	7.0	27.0	.00	13.0	45.0	.00

No further load added to this side.

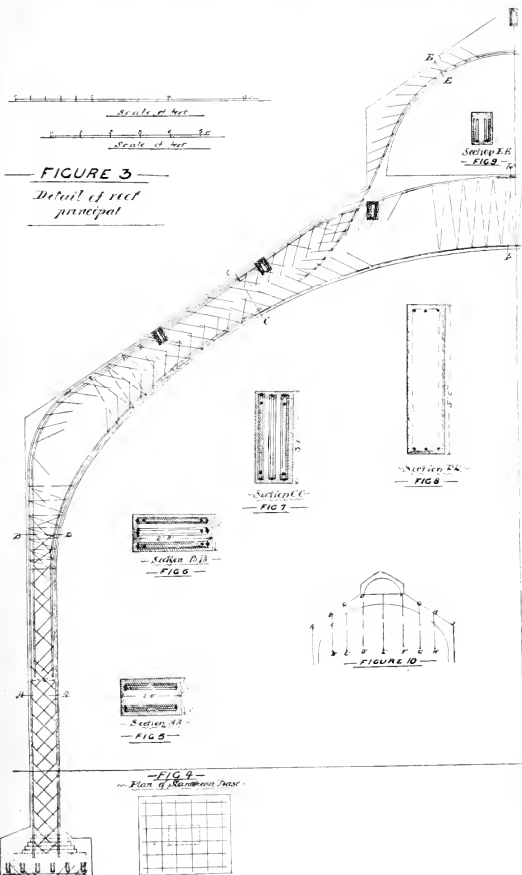
—	—	.01	—	—	.02	—	—	—
—	—	.02	—	—	.025	—	—	—
—	—	.03	—	—	.04	—	—	—

Deflections

F			G			H			Total load on two Principals	
Added load.	Total load.	Deflection.	Added load.	Total load.	Deflection.	Added load.	Total load.	Deflection.	tops, cwt.	Principals
cwt.	cwt.	inch	cwt.	cwt.	inch	cwt.	cwt.	inch		
8.0	cradle	7.5	cradle	zero	6.5	cradle	zero	2	3	
14.0	22.0	5.0	12.5	00	7.0	13.5	00	4	17	
10.0	32.0	7.5	30.0	00	6.3	30.0	10	7	4	
13.0	45.0	7.0	27.0	00	7.0	27.0	—	9	18	

Loading continued on this side.

01	23.0	68.0	13.0	40.0	01	13.0	40.0	12	7	
01	11.0	79.0	7.0	47.0	01	7.0	47.0	13	12	
01	11.0	90.0	7.0	54.0	02	7.0	54.0	11	17	



lower series is relinquished just beyond the point where the flat central curve of the ellipse is assumed, and the section, 3ft. 1in. deep at this point, takes the form shown in Fig. 7. The remainder of the inner bars in both upper and lower series are discontinued just above the position of this section; and the central section, where the arch attains its maximum depth of 5ft., is reinforced only by six bars, arranged in the manner shown in Fig. 8.

The upper arch, forming the skylight, is reinforced by two 1in. "Kahn" bars in the lower side.

Diagonal 1/2in. wire is introduced in the centre and crucial points in the arch. The foundation, shown in Fig. 4, being 6ft. by 5ft. 3in. in area, with a cross-lattice of twelve 1/2in. "Kahn" bars at a height of about 3in. from the under surface of the concrete.

The purlins, which have a span of 13ft. 4in. from centre to centre of the main arches, are 12in. deep by 9in. wide, reinforced with two 1/2in. "Kahn" trussed bars. The purlin under the upper arch of the skylight being increased to 15in. in depth, but reinforced in the same manner. The ridge is 14in. deep by 8in. wide, with two 1/2in. "Kahn" bars reinforcement.

Some of the provisions, precautions, and tests employed in the construction are interesting and instructive. The total weight of the ribs is approximately 40 tons, the portion above the springing being 28 tons 3cwt. The three purlins, 4 tons each, and each section of the centre lantern 2 tons 6cwt. The whole of the work in each rib was carried out in one continuous operation from both sides simultaneously, thereby obviating the risk of any joints occurring in the concrete, and also evenly balancing the weight on the centering—an important consideration, dealing with extensive loads, as in the present instance.

The centering was struck after a period of fifty-six days, and a test applied to two of the ribs at the instance of the Local Government Board, sixty days after construction. It was found that a settlement 1/16th of an inch occurred in each rib under its own weight, after the centering was removed, the measurement being taken in the centre of the span. The test carried out by Mr. W. G. Kirkaldy (David Kirkaldy and Sons) consisted in suspending loaded platforms hung from the arches in the position shown by letters B, C, D, E, F, G, and H in Fig. 10, either end of the platform being supported by one of the ribs, so that the effect on both could be simultaneously noted.

The loads were first applied to show the result which would be produced when the whole of the roofing was completed. These loads and the result is shown upon the various points of the truss, the deflection being indicated in each case. After this was complete further loads, calculated to be equal to the maximum wind pressure, were added to points F, G, and H on the right-hand side, and the resulting deflection on the whole truss noted. The maximum, as will be seen from the table, being an upward deflection .04 (or 1/25th of an inch) at point C, and a downward deflection of .02 (or 1/50th of an inch) at point G.

higher by the introduction of two additional 1/2in. bars in both extrados and intrados; the section just above the springing of the arch being shown in Fig. 6 (BB), embodying

eleven 1/2in. trussed bars, bound diagonally with 1/2in. diameter wire. The depth of the section at this point being 2ft. 8in.

The central bar of the inner set in the

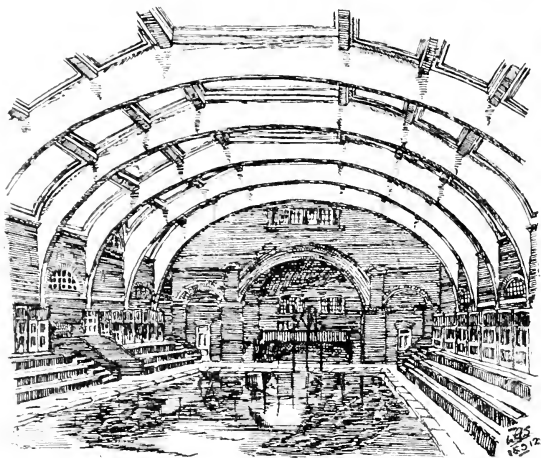


Fig. 11.

The test, which was executed in the presence of the Borough Engineer, Mr. George F. Carter, and Mr. A. A. G. Malet, of the Local Government Board, is to be specially commended for its practical character. The popular process of overstraining a structure by subjecting it to ridiculously heavy tests, cannot be too greatly deprecated. This test showed that the ordinary conditions applying to the structure would only, at most, produce the negligible movement of 1 10th millimetre or 1 25th of an inch. Having regard to the fact that the work was only sixty days old at the time of the test, it may reasonably be assumed that similar conditions would not cause even this negligible movement after the work matures, and the test clearly proved beyond question that the construction was so sound as to withstand almost any conceivable stress or shock. The measurements were recorded by a cathetometer. The changing stresses at point E are interesting, as also is the comparatively extensive upward movement on the left hand side of the truss, having regard to the fact that this portion alone showed absolute rigidity until the wind-pressure loading was introduced.

A maple flooring is placed on the bath in winter months, when the building is used as a hall, when it is estimated to seat 1,500 persons.

Fig. 11 shows the general effect of the interior; the side galleries, upon which dressing boxes are placed when the bath is in use, being constructed in steel framing and expanded metal reinforced concrete slabs.

The concrete was composed of 2½ coarse (1½) shingle aggregate, 1½ parts of sand, and 1 part of "Ferro Concrete" brand Portland cement, and the reinforced work designed by the Trussed Concrete Company upon the "Kahn" system, Mr. W. Wallis being the builder.

A.A. SMOKING CONCERT AND EXHIBITION OF DRAWINGS AND PHOTOGRAPHS.

A fresh and very agreeable departure from precedent was taken by the President and Council of the Architectural Association on Friday evening. In lieu of the annual dinner, which has not of late been so numerously attended as to avoid a loss, a gentlemen's smoking concert and an exhibition of half-scale drawings and photographs recently executed work was held in the lecture gallery at 18, Telford street, S.W.

The exhibition was opened by the President, Mr. Gerald C. Horsley, F.R.I.B.A., who also took the chair at the concert. There was a numerous attendance of members, and the evening was very agreeably spent by all.

The concert included a march, waltzes, and selections by the Cecilian Quadrille Band; recitations by Mr. C. Wontner Smith, who was deservedly encored; songs by Mr. C. G. Boucher, Mr. Harold Brittain, Mr. Charles F. Butt, Mr. T. Lawrence Dale, Mr. Alfred Score, and Mr. George Vye; aduets by Messrs. C. Lionel Shingle and C. E. Butt; and an amusing sketch by Mr. Guy Church.

The exhibition of architectural drawings and photographs of recent buildings lent by well-known architects not only covered the entire wall surface and screens of the lecture hall, but overflowed into the octagonal gallery. An interesting feature of the display was the hanging of photographs of the executed buildings side by side with the working drawings, so that by comparison it was possible to judge the ultimate effect in perspective of features delineated in elevation. A large proportion of the works illustrated have appeared in our own pages. The predominance of drawings of large country houses was marked.

With so large an exhibition, and the urgent demands upon our space at this season of the year, it is manifestly impracticable to allude to all the exhibits; but a few of the more noteworthy may be referred to. The President of the Association lent illustrations of Coverwood House and St. Paul's School for Girls. The work of Sir Aston Webb, R.A., a past president, was represented by the tower of the Victoria and Albert Museum, the College of Science, and the new Admiralty archway; Messrs. Sir Ernest George and Vokes by additions to Welbeck Abbey and other mansions; Messrs. Sir Charles Nicholson and Mr. Corlette by details of churches; Mr. H. T. Hare by Bangor University College; Mr. G. Gilbert Scott by the Lady chapel at Liverpool and the Roman Catholic churches at Ramsey, I.M., and of St. Joseph, Sheringham; Mr. J. J. Burnet by the British Museum extensions; Mr. W. A. Pitt by new King's College Hospital, Denmark Hill; Messrs. Colcutt and Hann by Lych House, Tetbury, and Davonies, Bucks; Mr. Ernest Newton, A.R.A., by Ardenham Place and other mansions; Mr. E. Guy Dawber by Burdicks, Fairfield, and Exford Park; Professor Beresford Pitt by offices in Euston-

square; Messrs. Ashley and Winton Newman by a house at Welwyn; Mr. E. L. Lutyens by a west wing to Temple Dinsley, Hertis; Messrs. Buckland and Farmer by Great Roke, Wiltshire; Mr. Walter Cope by Ewelme Down, Moynes Park, and Burberry's premises in the Haymarket (the latter illustrated in our pages to-day); and Messrs. Foreyth and Maule by Becklawn, Puttenham. Messrs. Warwick and Hall and Mr. Robert Atkinson both sent in competitive designs for the Berkshire County Council offices at Reading; Mr. Walter J. Tapper showed the finished brick church of St. Erkenwald, Southend-on-Sea, and halls at Birton and Kenfield; Messrs. Dunbar Smith and Brewer the Albermarle club-house; Mr. Charles Spooner a chapel at Letchworth; Mr. Arthur T. Bolton, Huntwood Edge and suburban railway stations for the London and North-Western Co.; and drawings of houses were also shown by Messrs. Field and Sammons, Mr. Geoffrey Lavers, Mr. C. Wontner Smith, and Mr. C. F. A. Voysey. Other exhibitors whose work we noted were Professor Reginald Blomfield, A.R.A., Mr. W. D. Caroe, Mr. Theodore Fyfe, Mr. H. Fletcher, Mr. W. Curtis Green, Mr. S. K. Greenslade, Mr. Ralph Knott, Mr. Mervyn Macartney, Mr. Halsey Ricardo, and Mr. J. Solomon. A very attractive exhibition of another class was a frame containing a series of eighty admirably clear large-scale photographs of chateaux and churches taken by Mr. A. W. Hennes during the A.A. Excursion to the Loire in August last. The exhibition remains open to-day and to-morrow (Saturday).

FAULTS IN THE THEORY OF FLEXURE.*

By HENRY S. PRICHARD, M.A.M.S.C.E.

(Concluded from page 629.)

The ordinary theory of flexure was gradually developed by noted scientists, beginning with Galileo, and was finally put on a solid mathematical basis by Navier in 1824. While it is faulty and incomplete, it is, considering the intricacy of the problems with which it deals, a remarkable approximation, and when used in the light of reason, an excellent guide within wide limits.

Within the elastic limits, its faults, as applied to well-proportioned and well-supported beams, are practically important only for very short ones; which, unfortunately, have less theoretical resistance within the elastic limit than indicated by the ordinary theory. The theory assumes that loads and reactions will be applied over the full depth of the beam, and that the profile of the beam and lateral supports are such that it will not buckle or develop weakness locally and will not buckle laterally; but the theory does not show how to insure these conditions, nor does it indicate the modification in the strength of the beam when they are not realised.

In trying to reconcile the theory with facts, the additional difficulties arise: that material has some imperfections in elasticity under stresses much less than what is ordinarily understood as the elastic limit; that wrought iron and soft and medium steel can have their elasticity perfected and its limit elevated by overstraining; and that overstraining introduces internal stresses in beams by which a greater proportion of the strength of the material is utilised under subsequent loads in the same direction (provided there has been no permanent buckling or serious injury).

In addition to the uncertainties incident to the faults in and limitations to the ordinary theory of flexure, there are uncertainties as to the effects of various methods and conditions of manufacture, on beams of various size and profile, which lie entirely outside of the scope of the questions dealt with by the ordinary theory, and can only be settled by scientific experiments.

The practical man, professedly sceptical in regard to theories, finally adopted the theory of flexure as a criterion for the strength of rolled Σ beams (influenced, no doubt, by

* Read before the American Society of Engineers, May 1.

the statement, in a pioneer manufacturer's pocket-book, of the favourable results of actual tests, made at Trenton, of iron **I** beams by a United States Government engineer, and placed such confidence in its results that, when steel was substituted for wrought iron, and new shapes of **I** beams were devised, their strength was assumed from theory, without tests; and when, within the last few years, new methods of rolling made it possible to roll deeper beams, wider flanges, and thinner webs, the ordinary theory of flexure was still relied on as a sufficient criterion of the strength of the new shapes adopted.

The changes which have been made in the profiles of **I** beams are quite marked, as shown in Figs. 8A, 8B, and 8C.

The more the centres of gravity of the flanges are moved toward the top and bottom, by making the flanges wider and thinner, the greater the computed resistance to bending in proportion to the area of the cross-section; yet there must be some limit beyond which the metal is actually rendered less effective by such spreading and thinning, and this limit can only be determined by the behaviour of beams in service and by scientific experiments.

Since the introduction of new shapes for steel beams, **I** beams have been tested by Edgar Marburg, M. Am. Soc. C. E., and a large number by certain manufacturers for their information and guidance.

In Professor Marburg's tests, some indicated very low elastic limits, especially for the deeper beams, the lowest being 10,500 lb. per sq. in. for a 30 in. girder beam. These low elastic limits have caused apprehension in the minds of Professor Marburg and other engineers. That the real, original elastic limit, however, as distinguished from the yield point, is likely to be very low has long been known. About 74 years ago Mr. Eaton Hodgkinson found that any stress, however small, was sufficient to produce a set in cast-iron beams; some 30 years ago the U. S. Board in making bending tests on wrought-iron **I** beams, found the elastic limit as low as 13,000 lb. per sq. in.; and numerous tests at

TABLE 4.
Loads which produced permanent sets of 0.1 and 0.4 in. in bending tests of 15 in. 42 lb. and 15 in. 31 lb. **I**-beams of standard shapes, and 15 in. 38 lb. and 12 in. 28.5 lb. **I**-beams of new shapes.

Depth of beam in inches.	Span in feet.	Loading as explained above.	Working load: W, in pounds.	Permanent set 0.1 in.		Permanent set 0.4 in.	
				Standard shapes.	New shapes.	Standard shapes.	New shapes.
15	21	(1) A	14,180	3.73 W	3.20 W	4.67 W	3.73 W
15	21	(1) B	14,180	4.04 ..	4.35 ..	4.37 ..	4.02 ..
15	21	(1) C	14,180	3.64 ..	3.15 ..	4.19 ..	3.83 ..
15	21	(1) D	14,180	4.03 ..	4.54 ..	4.15 ..	4.07 ..
15	21	(2) A	22,470	3.43 ..	3.16 ..	3.83 ..	3.26 ..
15	21	(2) B	22,470	2.84 ..	2.64 ..	3.68 ..	3.49 ..
15	21	(2) C	22,470	3.33 ..	3.02 ..	3.59 ..	3.14 ..
15	21	(2) D	22,470	2.88 ..	2.68 ..	3.47 ..	3.29 ..
12	16	(1) A	12,000	3.87 ..	2.92 ..	4.12 ..	3.85 ..
12	16	(1) B	12,000	4.04 ..	3.48 ..	4.31 ..	4.30 ..
12	16	(1) C	12,000	3.92 ..	3.22 ..	4.35 ..	4.21 ..
12	16	(1) D	12,000	4.22 ..	3.86 ..	4.50 ..	4.50 ..
12	16	(2) A	18,000	3.32 ..	2.66 ..	3.78 ..	3.24 ..
12	16	(2) B	18,000	3.35 ..	2.57 ..	3.80 ..	3.35 ..
12	16	(2) C	18,000	3.38 ..	2.73 ..	3.80 ..	3.51 ..
12	16	(2) D	18,000	3.59 ..	2.91 ..	3.89 ..	3.55 ..

* Single tests. In all cases the averages of three tests are given.

him, explained low original elastic limits as the result of initial internal stresses, and stated:

"It appears to me that the defects which he (Hodgkinson) has shown to occur even with very slight strains exist only when the strain is applied for the first time, or, in other words, that if a beam has already been subjected to a considerable strain, it may again be subjected to any smaller strain in the same direction without taking a permanent set."

This remarkable prediction has been supported by subsequent experiments, the most notable of which are those by Professor Johann Bauschinger, described in his "Communications, 1886," and referred to by Professor Marburg, who stated as follows: "Accordingly, after an initial stress, of a given magnitude within the elastic limit, has been once developed, the material is afterward perfectly elastic up to the limit of that stress."

It is much to be regretted that some of

fully observed and recorded, and otherwise which would develop the greatest load under which, if allowed to remain indefinitely, the deflection would not be excessive, and would finally cease to increase.

In Professor Marburg's tests the beams simply rested on supports, and concentrated loads were applied on the top flanges, which had no lateral support even at the ends, a severe combination of conditions, rarely encountered, which cannot be regarded as good practice. The most extensive of the manufacturer's tests previously referred to were made under various conditions of loading, on 12 in. and 15 in. steel **I** beams.

The conditions of loading and supports were as follows:—A, with end connection angles and loads applied at top; B, with end connection angles and loads applied by connection angles through the web; A, with end connection angles and loads applied at top; D, supported on seat angles with loads applied by connection angles through the web.

The beams were tested for all four of these conditions, with loads applied at the centre of the span, and also with loads applied at the third points of the span; that is 1, with one load, and (2) with two loads. The tests embraced beams of standard shapes and of new shapes; the averages of the preliminary specimen tests are given in Table 3.

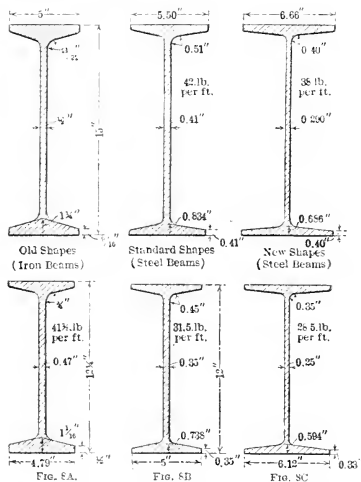
TABLE 3.

	Flange Values.		Web Values.	
	Ultimate tensile strength, per square inch.	Yield point, in pounds, per square inch.	Ultimate tensile strength, in pounds, per square inch.	Yield point, in pounds, per square inch.
Standard shapes—				
15 in.—42 lb.	62,146	38,211	60,850	39,141
12 in.—31 lb.	62,834	39,222	61,076	38,366
New shapes—				
15 in.—38 lb.	61,811	40,036	64,768	43,255
12 in.—28.5 lb.	60,568	41,036	64,184	43,647

The bending tests were made at Ambridge, Pa., and the construction of the machine necessitated the placing of the beams in a horizontal position, but they were guided and supported against lateral deflection at intervals of one-third of their length.

Table 4, giving the loads which caused permanent sets of 0.1 and 0.4 in. in 15 in. 42 lb. per foot, and 12 in. 31.5 lb. per foot, **I** beam of standard shapes, as in Fig. 8B, and 15 in. beams of new shapes, similar to those of 38 lb. per foot, and 12 in. 28.5 lb. per foot, **I** Fig. 8C, was compiled from the manufacturer's diagram of permanent sets. The loads are stated in terms of the working load, W, computed for the nominal shapes of the beams, as given in manufacturers' pocket-books, and shown in Figs. 8B and 8C, on the basis of 16,000 lb. per square inch in the extreme fibre.

The actual dimensions of the beams of the new shapes that were tested were somewhat different from the nominal dimensions, as



the Watertown Arsenal show low elastic limits for steel of excellent quality (for instance, a test of an eye-bar for the late George S. Morison, Past-President Am. Soc. C. E., showed a permanent set at 5,000 lb. per sq. in.).

Professor James Thompson, in 1848, before there were any retests of material to guide

the **I** beams, tested by Professor Marburg and others, were not experimented with, after they had some appreciable but not injurious permanent set, in order to ascertain the effect of overstraining on elasticity. It would be well to have some experiments in which the load would be removed, and, after a rest, gradually re-applied, and the elasticity care-

columns were to pierce and their flanges larger, and the radiating moments of inertia were therefore, the theoretical capacities were about 5 per cent. less than those of the original beams of which they are nominally the theoretical equivalents. It appears, from an examination of Table I, that the beams sustained for short periods loads more than three times the working load without a permanent set large enough to be taken account of when viewed merely as changes in shape. Slight permanent sets, even under the working loads, would not in themselves be noticeable, and would not be alarming if it could be shown that permanent or indefinitely repeated loads of, say, twice the working loads could not produce failure or serious deformation.

On an average, it took 18.6 per cent. more load to produce a permanent set of 0.1 in. in the beams of standard shape than in the nominally equivalent beams of new shapes, and 8 per cent. more to produce a permanent set of 0.4 in. Whether or not this indicates a corresponding superiority in permanent capacity, what the permanent capacity is, and what permanent sets the beams would take under their maximum permanent loads, are questions to be decided by scientific experiments.

SHROPSHIRE CHURCHES

The Rev. D. H. Crangue, M.A., F.S.A., of King's College, Cambridge, has finished the theoretically complete topographical work on the architecture of the churches of Shropshire he commenced some years ago, with permanent reproductions of photographs specially taken by Mr. Martin J. Harding, accompanied by plans drawn for the work by Mr. W. Arthur Webb, A.R.B.A. Messrs. Hobson and Co., of Wellington, Salop, are the publishers.

The second volume, now published, comprises the Hundreds of Condover, Ford, Church Stretton, Ludlow, and the towns of Pimhill, Oswestry, and the Liberties of Shrewsbury, thus covering the richest part of the county, and including such examples as the historic church of Battlefield, so finely illustrating the best traditions of the Perpendicular period, but also containing very fine Decorative windows, Holy Cross, to which the late J. L. Pearson added a choir and presbytery during the eighties, as a choir and presbytery of interesting buildings in Shrewsbury, with nave and choir dignified and built of six bays with a broad pier in the centre, said to have marked the divisional line between the monastic and parochial part of the building, also where a screen, probably of wood, existed. This part of the church underwent restoration in 1862 under the direction of Mr. J. Pointney Smith, and Mr. Harold Breakpear, F.S.A., has within the last four years repaired the tower extensively. The west entrance is Norman much modernised, and the battlement of the tower surmounting the facade, with its enormous Perpendicular window, was added in brickwork about 1690. The Lady chapel is said to be the only remaining portion of Old St. Chad's Church still standing intact above ground, and for long it was known as the Bishop's Chapel. New St. Chad's is a Chancel and choir church, from the designs of George Stewart, the architect of All Saints' Hall, erected at a cost of £20,000 in 1792. The great church of St. Mary's, at Shrewsbury for many centuries a collegiate church and also a royal "chapel" in origin goes back to Saxon times. The illustrations are excellent, with copious descriptions and diagrams showing details of this noble building.

An appendix of useful references, the useful notes, and the concluding part is a general survey dealing with geographic matters and also allating the natural periods represented by the 326 churches described in the author, eight of them under being new buildings. Plan and section drawings are similarly dealt with; like the furniture and fittings. Thus no church has been spared to make the work complete and readable.

LIGHT AND COMPETITION.

At the seventeenth half yearly meeting of the North of England Gas Managers' Association, held last Saturday in the lecture theatre of the Institute of Mining and Mechanical Engineers, Westgate road, Newcastle, Mr. Jacques Abady, London, delivered a lecture on "Light and Competition," in the course of which he asked what was competition, and how should it be met? They could lay down two propositions: 1) What were the strong and the weak points of the electrical engineers' position, and did they both state their cases fairly? 2) What were the possibilities of improving their own and the electrical engineers' position? The first proposition was a simple one, and should be a mere statement of fact. If they analysed the two sources of illumination which were in competition, they were forced to consider them from the points of view, firstly, of price, and, secondly, quality and general suitability for giving light to human beings. Having dealt with these two points at considerable length, and with much detail, Mr. Abady addressed himself to the prospects of improvement, and he thought the electrical engineer stood better than the gas engineer. With gas as it was made now, and burners as they were conceived, he did not think there was very much possibility of greatly improving the duty that one obtained from a cubic foot of gas. Electricity, on the other hand, was hot-foot in pursuit of an idea—that was, using vapour as a conductor of current, which, he thought, could, in perfect and near future even, be produced of great result. What could, and should, a gas engineer do to bring about improvement in his own products? He did not believe anything like sufficient interest was taken in the question of reflection from polished surfaces or through prisms. The possibilities of altering the angles of distribution, and of increasing the advantage in the tone and colour of the light, were, it seemed to him, all very great.

Another more immediate direction in which they should cast their thoughts was that of producing low grade gas, not by increasing its percentage of inert constituents, but by setting themselves to attenuate the hydrocarbons, so that, while increasing in volume, they caused less intrinsic calorific power, and decreased the finished product to get nearer the point where they could obtain the heat they required to render their mantles incandescent by the admixture of just the right amount of air.

In conclusion, he thought they could honestly say their industry had made great strides in the point of view since he last addressed them in 1904; and he believed if they went on looking facts fairly in the face, the future of gas as a lighting medium would be just as great as had been the past. He made detailed comparisons as between gas and electricity, and claimed that the gasman had little to fear from the electrician in the matter of cost. Mr. Abady mentioned in reference to the future of gas-lighting and electric lights, that last Wednesday he attended an experiment of a new form of gas-lighting. While he was unable to disclose what that form was, he thought he could say with deliberation that the introduction of that new form of light would do as much for gas as the filament lamp had done for electricity. It would do wonders, he believed, for higher pressure gas.

The Board of Trade has confirmed an order made by the Light Railway Commissioners for an extension of the light railways at Southend-on-Sea.

The Canadian Northern Railway Company has let the contract for the construction of the first 50 miles of railway from Prince Albert toward Hudson Bay to William Oseman, Kingston, Sask.

The mosaic work in the Shrine of the Sacred Heart at Westminster Cathedral is now completed. Under the canopy, which is enriched with gold and red vitreous mosaic, is a representation of the Sacred Face by the late Mr. W. C. Symonds, and the walls have been veneered with plates of green and white marble.

OBITUARY.

Mr. James Barbour, architect and civil engineer, Dumfries, died on Sunday morning at Harrogate. He had been on holiday. Mr. Barbour, who was seventy-eight years of age, was a leading architect in Dumfries district, and designed many public buildings and private residences. He also engineered a number of waterworks, including the scheme for the supply of a great part of Lower Amandale, which is now being carried out. He was a Fellow of the Scottish Society of Antiquaries and a Justice of the Peace for the county of Dumfries.

We regret to hear of the death at an advanced age of Mr. Lewis Angell, F.R.I.B.A., M.Inst.C.E., for many years borough engineer and surveyor of West Ham, and the first president of the Institution of Municipal and County Engineers. Mr. Angell was elected a Fellow of the Royal Institute of British Architects in 1861, and retired from practice ten years ago, and had since resided at Calside, Carlisle road, Eastbourne.

Engineering Notes.

ROYAL ALBERT DOCKS.—The King has appointed Wednesday, July 17, as the day for the ceremony of cutting the first sod of the extension of the Royal Albert Docks. It is anticipated that the whole work will be completed in four years. The first contract, to cover constructional operations, will represent nearly £1,250,000, and the tenders are to be sent in by selected firms by the end of May. The contracts for equipment will be let subsequently. The excavation of the dock will be proceeded with immediately, and it is anticipated that the entire work will be completed in four years. The electrically driven pumping plant ordered twelve months ago for raising the water level in the Royal Victoria and Albert Docks to a 38ft. level is now in course of installation, and will be ready for use this summer. There are three 70in. suction pumps, which will deliver through six 50in. pipes, and have collectively a capacity of 280,000 gallons.

The executive committee of the Florence Nightingale Memorial Fund have unanimously entrusted Mr. Arthur G. Walker, of Cedar Studios, Chelsea, with the commission as sculptor to execute the bronze statue of Miss Florence Nightingale.

At Tuesday's meeting of the London County Council it was reported that Mr. W. S. Hill, a materials-inspector on the unsteady staff of the architect's department, met with a fatal accident on April 30, at the new County Hall site. It appears that Mr. Hill was stepping over a scaffold on to a window-sill when he slipped and fell through a window opening. Mr. Hill, who was fifty-three years of age, had been in the service of the late School Board for London and the Council for twenty years.

At Weston Mill, St. Budeaux, near Devonport, on Saturday, the Bishop of Exeter consecrated the foundations of St. Phileas, the tenth church in connection with the Three Towns Church Extension Scheme. There are only two more to be built. The Bishop of Exeter consecrated at Attewater, Plymouth, on the following day, the Church of St. Mary the Virgin and St. Mary Magdalene, another of the buildings erected under the same Extension scheme. The last-named church is situated in Avington-street, Clatdown. The architect is Sir Charles A. Nicholson, Bart., and the builders are Messrs. Cowling and Son, of Bristol.

A special meeting of the Rhine District Committee of the county council of Wigtownshire was held in Stranraer on Saturday to further consider as to repairs of existing road damaged by winter storms on St. Phileas, on the main road between Stranraer and Drummore. There were two proposals before the committee—to construct a new road inland through the Logan estate, at the estimated cost of £12,250 12s. 6d., exclusive of compensation to landowners and tenants; and to repair the existing roadway by erecting a substantial concrete, at the estimated cost of £1,558 19s. By the casting vote of the chairman it was decided that a new sea wall be erected, in terms of the surveyor's estimate.

CURRENTE CALAMO.

If this year's Academy Exhibition really represents British art, it is in a bad way. A duller show we seldom remember, varied as it is by æsthetic extravagances which appeal to the popular love of sensationalism, apparently despairing of attracting notice otherwise. The really good pictures are by a dozen artists or so, such as Mr. Sargent, Mr. Clausen, Mr. David Murray, Sir Ernest Waterlow, Mr. H. W. B. Davis, Sir Alfred East, Mr. Waterhouse, Sir Hubert von Herkomer, Sir Lawrence Alma-Tadema, Mr. Sims, Mr. Hughes Stanton, Mr. Arnesly Brown, and one or two others.

Mr. Arnesly Brown's "A Norfolk Landscape" is one of the very best works on view. We are glad to see that the Macdonald Trust, of Aberdeen, have promptly secured it for £750 for the Aberdeen Art Gallery. Mr. Sargent's "Cypresses" is, perhaps, hardly up to his average. Mr. David Murray's contributions are all welcome and of high quality; his "Music by the Lake," "A Whisper of Winter," "The Pilgrim's Path," and "The Heart of the Trossachs" will delight everyone capable of their appreciation. Sir Ernest Waterlow's "Sussex" is broadly simple and dignified. Sir Alfred East's "A Tranquil River," "Autumn in England," "A Castle in Spain," and "Under the Wold" are characteristic examples of his capability for management of colour. Mr. Waterhouse's "Penelope and the Suitors" more than atones for his two portraits, which, after all, have a pleasant unconventionality absent from nine out of ten of the "royal" and official productions which this year have found their way to Burlington House in such shoals.

Mr. William Llewellyn's election as an Associate of the Royal Academy on Wednesday, we suppose, a fitting tribute to his esteem in high circles. We should rather have expected the success of Mr. Havard Thomas, who, it is said, had the second highest vote. Anyhow, for the present the question raised by Mr. Strang's candidature remains unsolved. Already an Associate-Engraver, and not allowed to exhibit pictures, as such, he has won admission, as an outsider, for his oil-paintings on their merits. He allowed his name to be added to the list of candidates as an Associate-Painter, presumably to test his right to do so without resigning as an Associate-Engraver, as James Ward was told he must do when he inquired if he could be promoted to the status of an ordinary R.A., if his work satisfied his colleagues. Whether the Council still regard that as a governing decision in all cases of the kind we do not know.

The remarks of the Prime Minister at the Academy banquet with reference to the exodus of works of art from this country have been emphasised by the announcement that Lord Feversham has sold his Rembrandt "Portrait of a Merchant" to Mr. H. C. Frick, of New York, for £504,000. The President of the Academy hinted that it might be a good thing if the State had a right of pre-emption; but this would not in itself be a remedy. As far as we remember, owners of great pictures and other works of art have, as a rule, been quite willing to sell to home buyers first—at their price! The truth is,

the taxpayer has grown rather suspicious of the touting for home buyers, as he suspects, mainly with the object of raising the figure, and he is resigning himself to see from time to time objects of art which ought to belong to the nation sold, either on grounds of necessity or from motives of cupidity, to the highest bidder.

The eccentricities of some of the local authorities' methods of indexing the names of streets cause many strangers difficulty in finding their way about London. Recognising this, the Royal Institute of British Architects is endeavouring to secure a uniform and serviceable method of displaying the names of all the streets, and is holding a conference on the 22nd inst., when specimens of especially legible name-plates will be submitted, the idea being to hit upon a style of tablet which all might identify at a glance. "Bill-posting Prohibited-street" or "Keep to the Right-lane" would thus no longer be "blind-alley jobs" for belated pedestrians. The idea is good. It might perhaps help, as before suggested in these columns, if the name of the street was inscribed on the pavement at its junction with another, an arrow indicating the route. That this is judged a prominent and certain-to-be seen indication is evident from the free advertisements of some of the pavement-makers which adorn the footpaths.

There have been many modern Jewish artists, but little, if any, corporate manifestation of Jewish art. The Palestine Exhibition and Bazaar, which is to be held at the Portman Rooms on May 13 and 14, will embody some. The exhibition is in aid of the Bezalel and the Evelina de Rothschild Schools in Jerusalem. Bezalel was one of the craftsmen of the Tabernacle, and the Bezalel School was started in 1906 by Professor Boris Schatz, a sculptor whose work is well known on the Continent, to revive Jewish craftsmanship, inspired by Jewish motives, and instinct with the atmosphere of the Jewish land. Carpets, filigree-work—mostly produced by Jews from the Yemen, in whom this craft is a tradition—lace, copper-work, wood-carving, and inlay are the chief products of the school. Professor Schatz, it is stated, has tried to avoid European models and give the work a definitely Palestinian character. There have been similar exhibitions in Germany, Austria, and Holland.

With reference to Sir Philip Burne-Jones's letter in the *Times* of Monday complaining of the exhibition at the National Gallery of a picture by a living Italian artist, Sir Charles Holroyd points out that there are several precedents, including two by Josef Israels, one by Fantin Latour, and "The Horse Fair," by Rosa Bonheur. These were all exhibited in the lifetime of the artists. Quite true; and some people wondered why, remembering the unwritten law which limits entry to the National Gallery of the works of deceased artists of front rank. More people, perhaps, are wondering now what the other special claims are to the inclusion of the late Lady Colin Campbell's portrait in Room 24, amongst the Greuzes and Corots of the Salting Bequest!

The pourparlers in connection with the dispute in the building trade are proceeding. The London master builders have offered an

increase of a halfpenny per hour on condition that the men withdraw their demand for an increase of 1½d. a reduction of the summer working hours from fifty to forty-seven, and double pay for overtime. This offer has not been accepted, and the notices to cease work early in June remain in force; but further proposals are contemplated which will afford a basis for negotiation and, we believe, amicable settlement.

Sir William Collins's cartoon to "benefactors" on Wednesday at the University of London's Presentation Day gathering was timely. The Senate, he pointed out, was often much handicapped by the benefactors earmarking their benefactions. In order to correct misapprehension he would like to remind those present that the Senate of the University still had full power to hold property. Much had recently been said about the housing of the University. It was a burning question, and it was surely not too much to ask that the University should not be crippled in carrying out its high objects by bad accommodation. Whether they remained in the Royal borough of Kensington or moved to the drab gentility of Bloomsbury, to the shady gardens of Gray's Inn, to the banks of the Thames, or to the broad acres of the Foundling Hospital, they were determined to remain faithful to their high ideals, to hold out for all classes of citizens the open degrees. We are glad to know that. There are some "gifts of the Greeks" which somehow load the recipients with obligations which are scarcely distinguishable from fetters.

We believe that the outcome of the many months' negotiations for the erection of a new Custom House for Liverpool on the present vacant portion of the old George's Dock site at the Pierhead, is an offer by the Treasury to provide £100,000 for the building, on condition that the Corporation give the necessary site, estimated to be valued at £50,000. Whether that sum will satisfy the requirements of Liverpool is doubtful. The scheme recently submitted to the Chancellor of the Exchequer by Messrs. Cubitt, of London, who have an option of the site, and which embraced a handsome composite design by Messrs. C. Clegg and Son, architects, of Manchester, was estimated to cost half a million sterling. It has taken some years now to make the Government move, and Mr. Lloyd George's present offer indicates that he is no better judge of the size and character of the buildings required than of the ultimate cost of the working of his Insurance Act!

The acting conservator of the Metropolitan Museum of Art, Mr. D. L. H. of Queens' College, Oxford, has been appointed Reader in Egyptology in the University of Manchester. Dr. Gardiner, a Laycock Student in Egyptology at Worcester College, and was awarded the degree of D.Litt. for his researches in Ancient Egyptian philology. The new extension of the museum in which the valuable Egyptian collections will be placed is being rapidly proceeded with, and Miss W. M. Crompton has been appointed assistant in charge of the Egyptological and anthropological specimens.

COMPETITIONS.

CARD BACK DESIGNS.—The Worshipful Company of Makers of Playing Cards offers prizes of £15 10s. and £10 10s. on certain conditions for designs for backs of playing cards. Full particulars of the conditions applyable to the competition can be obtained from W. Hayes, the clerk of the company, Guildhall, E.C.

CHESHIRE COUNTY COUNCIL SCHOOL, PORT SUNLIGHT.—The competition committee of the Liverpool Architectural Society are in correspondence with the Cheshire County Council over the proposed competition for a school at Port Sunlight. Members are requested to refrain from applying for the Conditions at present, as the society are pressing for the usual five per cent. commission and premium to competitors.

DOVERCOURT.—Mr. Paul Waterhouse, M.A., F.R.I.B.A., the assessor appointed by the Hants Education Committee to report on the plans submitted in competition for the new school at Dovercourt, has awarded the premiums as follows: First prize of 20 guineas to Messrs. Brown and Burgess, Princes-street, Ipswich; second of 10 guineas to Mr. E. T. Johns, Lower Brook-street, Ipswich; and third of 10 guineas to Messrs. Goudy and Cressell, St. Peter's Chambers, High-street, Colchester.

KING EDWARD VII. MEMORIAL AT OTTAWA.—With reference to the advertisement of this department inviting competitive designs for a monument to be erected at Ottawa to his late Majesty King Edward VII., attention is drawn to the fact that the names of the jury that will make the awards are not given therein, and it is believed that artists intending to compete would like to know who will be the judges in the competition. It is suggested in this connection that we should announce the names of the judges. They will be the advisory art council, whose members are Sir Edmund Walker, Toronto; Dr. Francis J. Shepherd, Montreal; and Senator Arthur Bover, Montreal.

PADHAM MUNICIPAL OFFICES.—Members and Licentiates of the Royal Institute of British Architects must not take part in the above competition, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions.

WINNIPEG PARLIAMENT BUILDINGS.—In this preliminary competition, in which the Government of Manitoba invited designs for a building of the estimated cost of £400,000, Mr. Leonard Stokes, F.R.I.B.A., has selected the following five architects to take part in the final competition: Messrs. Brown and Vallance, Montreal; Messrs. Clemshaw and Portnall, Regina, Saskatchewan; Messrs. E. and W. S. Maxwell, Montreal; Messrs. Sharp and Murray, Toronto; and Mr. F. W. Simon, F.R.I.B.A., Liverpool. Each of these competitors will receive a sum of 2,000 dollars. The competition was limited to architects being subjects of the British Empire and practising therein. May the best man win, whether English or Canadian! Meanwhile, our congratulations to Mr. Simon on his securing a look-in for the old country.

A new road four and a half miles in length, is being constructed between Exchins and Elmers-Port at a cost of £50,000, under the direction of Mr. Selvey A. Kelly, surveyor to the Naylor Trustees.

A. Tinsley's motion, of the London County Council, the highway committee recommended, and after two amendments had been defeated, was agreed, that the proposals in the Council's highways and improvements Bill for the construction of tramways from Wood-lane to Harewood, and the reconstruction of the Harewood from Cheadle-road to West India Dock should not be further proceeded with in the present Session of Parliament. This course was decided upon in consequence of the inquiry made in the House of Commons, supported by the action of a metropolitan borough Council, in connection with overhead wires.

Our Illustrations.

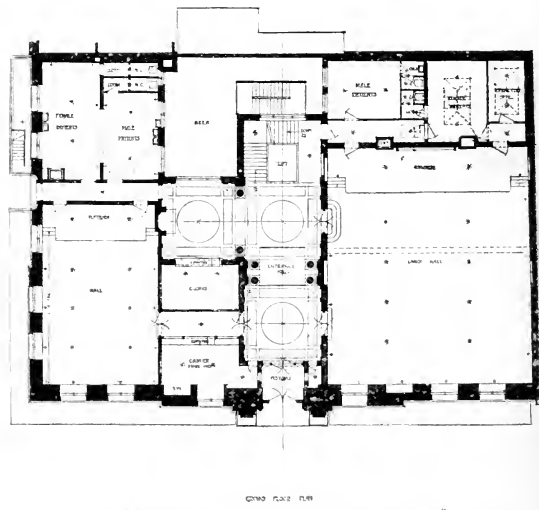
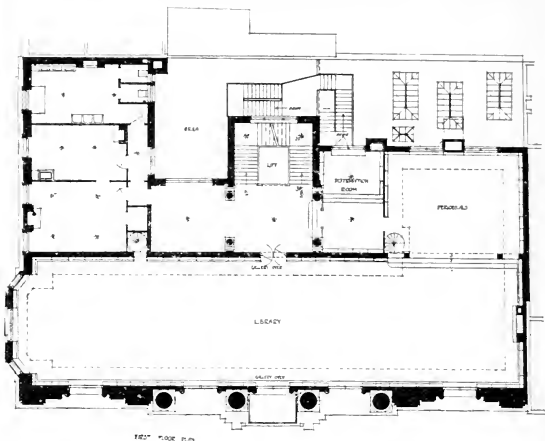
STON HILL, YORKSHIRE.

This house is in course of erection for Mr. Percy Standcliffe on the site of a house erected about one hundred years ago, that has been pulled down to make way for it. The estate until recently belonged to a branch of Lord Harewood's family, and is about four miles from Thirsk, in a richly wooded neighbourhood, through which the river Wicke winds. The new house is planned so that the principal rooms all get as much sunshine as possible, and face the gardens and river, and several of the windows command fine views of the Vale of York and the Hambleton Hills. The house is being built with 20in. thick

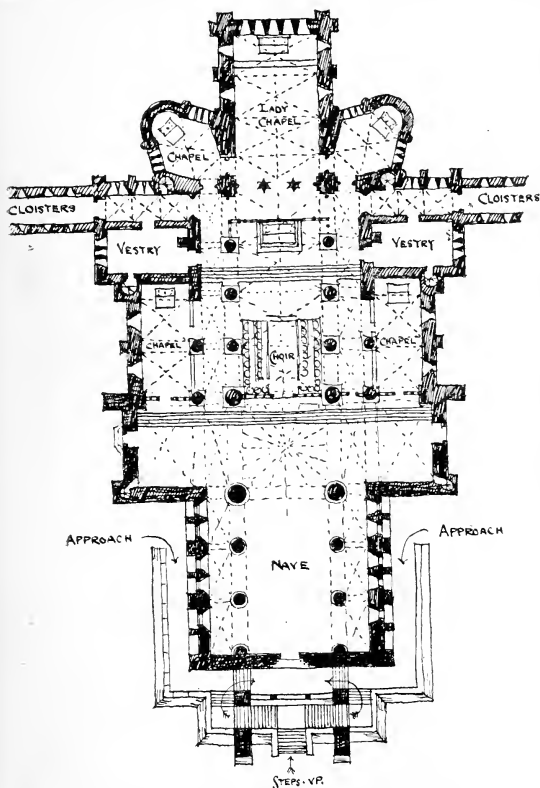
cavity walls, the outer facing being of 2in. thick red hand-made bricks, and the roofs are to be covered with bricks, red, hand-made, and faced tiles. The entrance porch shown by the view is of Portland stone, which is also used sparingly for windows, sills, strings, etc. The interior is to be treated in a simple but effective manner. The architect is Mr. Walter H. Brierley, of York, and the builder Mr. Thomas Lumsden, of Newcastle. The illustration is reproduced from Mr. Gascoyne's water-colour, now on view at the Royal Academy Exhibition.

PREMISES OF THE ROYAL SOCIETY OF MEDICINE.

The new house of the Royal Society of Medicine at the corner of Henrietta-street and Wimpole-street, which is to be opened by



NEW PREMISES FOR ROYAL SOCIETY OF MEDICINE, HENRIETTA STREET, W.



CHAPEL OF THE RESURRECTION, NEAR LEEDS.

Design by Mr. TEMPLE MOORE, F.S.A., Architect.

the King on Tuesday, the 21st inst., is of Late Renaissance type. It stands on an area of 10,000 square feet, and consists of a basement, a ground floor, and three additional floors. On the ground floor is a paved vestibule with two meeting halls opening out of it, one accommodating five hundred and the other a hundred and fifty persons. The remainder of the floor is given up to patients' rooms and offices. The library on the first floor, with nearly 100,000 volumes, stretches the whole length of the building, and is 110ft. long, 28ft. wide, and 19ft. high. In an annex is the periodical room, and the central portion of the second floor is the council room, with two committee rooms opening out of it. There is also a tea and conversation room. The third floor contains a museum, a room fitted and equipped for examining specimens and for histological work, a smoking-room, etc. In the basement are dressing-rooms and storage for 250,000 volumes. Messrs. John Belcher, R.A., and J. J. Joass are the architects.

BANKING PREMISES AT MATLOCK FOR MESSRS. WILLIAMS DEACONS BANK, LTD.

This interesting and characteristic house of 18th-century date has for some time been

used as a bank. Its quiet, well-proportioned stone exterior has, however, been to some extent spoiled by an unsightly addition on the side facing the public road, and the entrance, with its flight of circular steps, has up to now served both for bank and manager's residence. The alterations and additions now in progress consist mainly in providing increased accommodation for the banking business, and entirely disconnecting the same from the manager's house. By lowering the floor-level of bank the interior proportions are improved and an easier approach for the public is obtained. The new entrance vestibule has been designed so as to completely mask the unsightly addition referred to above, and will be executed in Stancliffe stone. The interior is being entirely remodelled, with rich plaster ceiling, marble floor, walls panelled in pine (painted), the fittings, screens, etc., in mahogany, and entrance-door in oak. The manager's house contains some good plaster details of the period, and has a charming old staircase, screened from the hall by an arcade. No architectural feature of the old building will be disturbed (except the lowering of the eills of bank windows), and as it stands in well-timbered grounds, it will to a large extent retain its old-world character.

The work is being carried out by Mr. J. W. Wildgoose, contractor, of Matlock, from the designs and under the direction of Messrs. J. Langham and A. R. Parker, architects, of Manchester. The drawing illustrated herewith is now on view at the Royal Academy.

DESIGN FOR THE NEW CHAPEL OF THE RESURRECTION AT MIRFIELD, NEAR LEEDS.

The Community of the Resurrection at Mirfield, when determining the character of the architecture best adapted to the site and purposes of their great chapel, decided that severe Cistercian simplicity should govern its lines, and Mr. Temple Moore, when making this design, adhered to the promoter's wishes. The accompanying exterior and internal views of his scheme are reproduced from the originals now on view at the Royal Academy, together with the plan which we give here. Two side-chapels flank the choir and two more occur, apsidal shape, north and south of the Lady-chapel, which extends eastwards on orthodox lines. This plan was not adopted.

ARCHÆOLOGICAL.

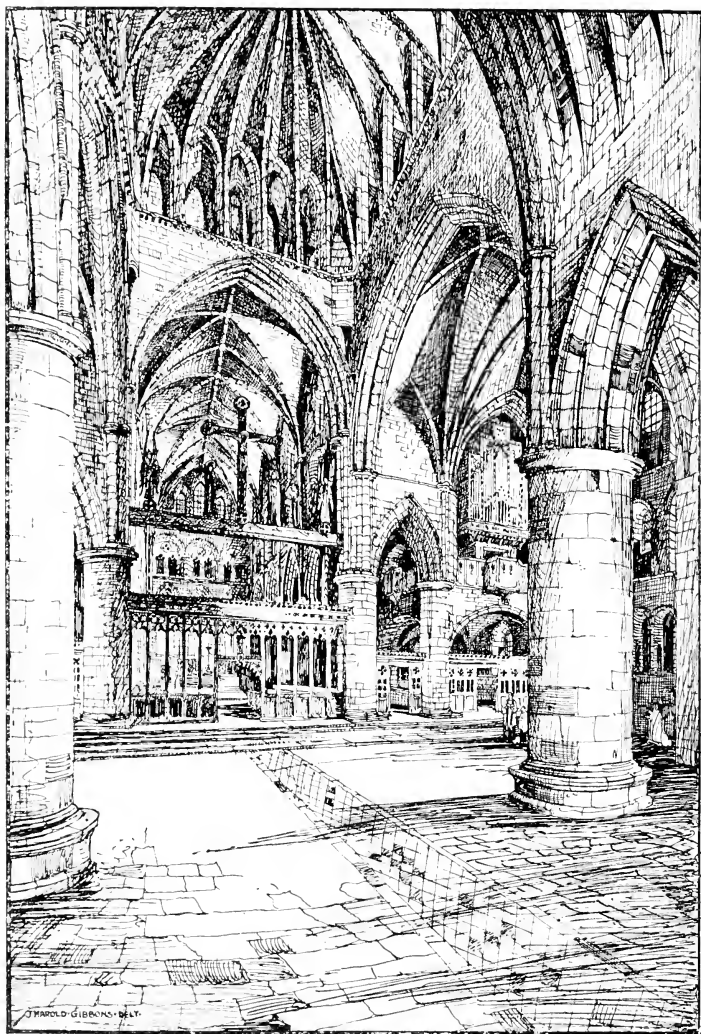
RECENT DISCOVERIES IN PATERNOSTER-RROW.—The recent finds during works of rebuilding at Nos. 8, 9, 10, and 11, Paternoster-row, E.C., were described to the members of the British Archaeological Association at their last meeting by their hon. secretary, Mr. Allen S. Walker. Mr. Charles E. Keyser (president) occupied the chair. Mr. Walker said that in mediæval days St. Paul's Cathedral was surrounded by a wall for the convenience of the clergy. Paternoster-row was just outside the northern portion of this wall. At the end of the Row stood the Church of St. Michael ad Bladum, a church which was rebuilt in the 15th century and pulled down after the Great Fire. The boundary line of the parish included an important mansion at its south-west corner. This mansion was followed by another house which could not have been built much earlier than 1640. The earliest remains found during the excavations were Roman pottery and a portion of a Roman pavement. Then there were specimens of Venetian glass and pottery extending from mediæval days down to modern times, as one of the vessels bore a medallion portrait of George IV. Pipes of all ages were also found. The excavations went down to a depth of 20ft. before the Roman remains were encountered.

The trustees of the Chantry Fund have purchased Mr. F. L. Emanuel's painting, 'A Kensington Interior,' and Mr. Mortimer Brown's bronze shepherd boy—a life-size gilt-bronze figure of a boy with a staff, plucking a thorn from his hand.

The members of the St. Albans and Hertfordshire Architectural and Archaeological Society have visited the castle and the palace at Berkhamstead. Mr. Charles H. Ashdown acted as guide, and a paper on the architectural features of the castle was read by Mr. Whitford Anderson, A.R.I.B.A.

The Proceedings of the Devon and Exeter Architectural Society for 1911-12, just published, has as a frontispiece an excellent photograph of the president, Mr. E. Coath Andrews, M.S.A., of Plymouth. The society now numbers 49 members, 17 associate members, 16 associates, and four honorary members, a total of 86. The presidential address of last session, by Mr. James Jerman, F.R.I.B.A., published in full, is chiefly descriptive of the International Architectural Congress at Rome, and Mr. Harbottle Reid contributes a paper on Venice, and its reception of the members of the congress.

For the Sir Alfred Jones Memorial Committee, Liverpool, Sir George Frampton, R.A., has prepared designs for a group of symbolical statuary, and these have been accepted. The question of a suitable site is still under discussion. The Liverpool Architectural Society recommends that the approaches to the pier-head should be laid out in such a manner as to afford sites for this and other works of monumental statuary, and this suggestion has commended itself to the favour of the memorial committee. It remains now to be seen what attitude the corporation of Liverpool will take towards the proposal.



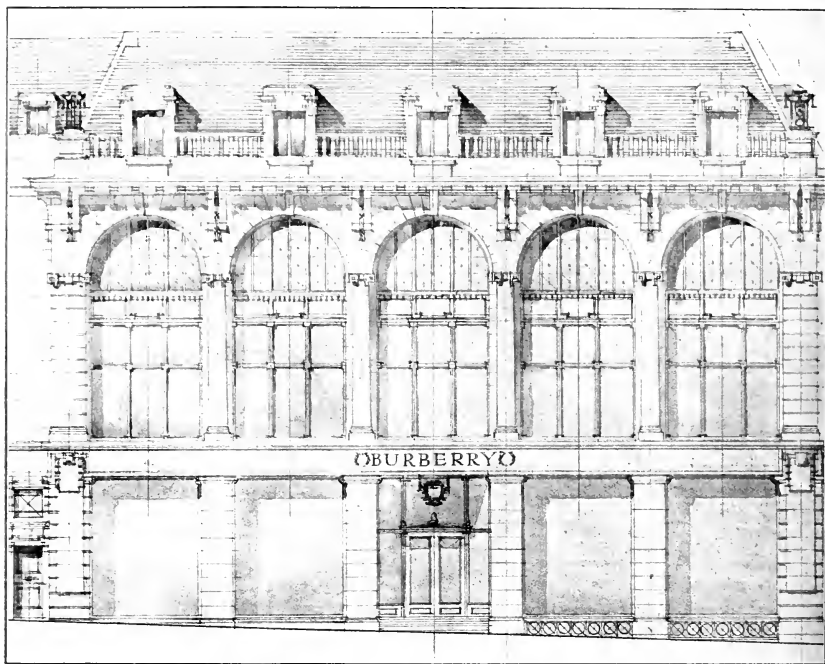
DESIGN FOR THE CHAPEL OF THE

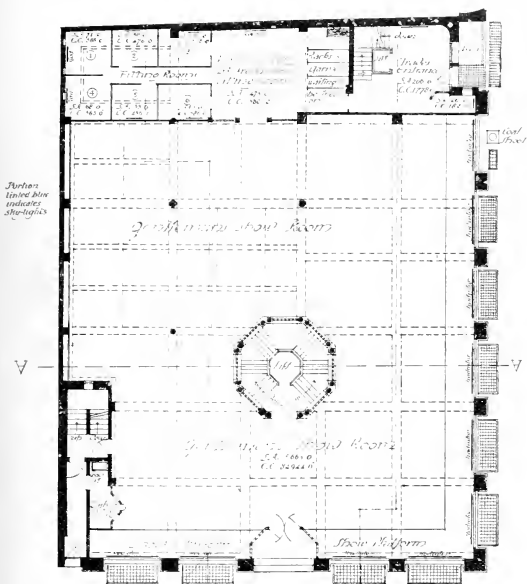
Mr. TEMPLE



SECTION, AT MIRFIELD, NEAR LEEDS.

J.B.A., Architect.





PLAN OF GROUND FLOOR

MESSRS. BURDERRYS' NEW PREMISES, HAYMARKET, S.W.

MR. WALTER CAVE, F.R.I.B.A., Architect.

years respectively) for measured drawings of existing work; two similar prizes of two guineas, with like limitations of age, for finished architectural sketches; and also the Glover travelling studentship, the Glover medal, and a prize of ten guineas to a student or associate. The council further offer prizes in books of the following value:—A first prize of two guineas and a second prize of one guinea for a design for an entrance with gates, lodge, or gatehouse to the forecourt of a mansion approximating in size and importance to Seaton Delaval Hall.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A meeting of the council of the above body was held on May 6 at the Institute Rooms, No. 31, South Frederick-street, Dublin. The president, Mr. A. E. Murray, R.I.A.A., F.R.I.B.A., was in the chair. There were also present: Messrs. W. Kaye-Parry, R. Caulfield-Green, L. O'Callaghan, F. Hayes, C. H. Ashworth, A. G. C. Millar, H. Aliberry, J. H. Webb, F. Hicks, G. P. Sheridan, Professor Scott, and C. A. Owen, hon. secretary. The minutes of the previous meeting were read and signed. The correspondence, including several letters from the R.I.B.A. (Royal Institute of British Architects), the Labour Exchange, the National University, the Local Government Board, etc., was dealt with. It was decided to subscribe towards a portrait of the President of the Royal Institute of British Architects. A notice of motion in connection with the examination scheme was handed in.

SCOTTISH BUILDING TRADES' FEDERATION.—The half-yearly meeting of the executive committee of the Scottish Building Trades' Federation was held in the premises of Edinburgh, Leith, and District

Building Trades' Association, 61, Lothian-road, on Friday. Mr. James Farquharson, Aberdeen, president, occupied the chair. Reports from the various centres showed that trade was still very quiet, with no immediate prospects of expansion. Notwithstanding the state of trade, wages were inclined to rise, due to the general unrest and to the increase in the cost of living. It was reported that Mr. Farquharson, the president, had been appointed upon the advisory committee in connection with the National Insurance Act, both for Great Britain and Scotland. A report upon the working of the Act was submitted, and consideration was also given to the effect of the Trades Dispute Act, and proposed amendments thereon were considered, and strenuous support of the memorial by the Employers' Parliamentary Council was advocated. Notwithstanding the depression in the trade during the last few years, the Federation was reported to be in a united and flourishing condition, and the finances were stated to be in a healthy state. It was decided to hold the annual meeting in Inverness in September. The members thereafter, through the courtesy of Mr. John MacLeod and Mr. Darge, inspected the building of the Usher Hall.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—At the annual meeting of the Sheffield Society of Architects and Surveyors (Mr. J. B. Mitchell Withers presiding), the hon. secretary, Mr. James R. Wigfull, presented the twenty-fifth annual report. Referring to Sheffield's new building by-laws, Mr. Wigfull said there was a want of elasticity in their provisions, while too great a desire to conserve the old methods of building was evinced, and too little encouragement given to more modern methods and materials. Referring to the competition

for plans for the Sheffield King Edward Memorial Cripples' Home, he said that the conditions for the competition had been issued, and the council hoped that the response would be such that the local authorities would be encouraged to follow this example, and again place some of the plans for the public buildings of the city in the hands of architects in private practice. Such a course would promote a spirit of healthy rivalry, from which the city would derive benefit. The report was adopted on the motion of Mr. Potts, seconded by Mr. Frank Winder. It was reported that the past year had seen the credit balance of £400 reduced to £38, and in accounting for this Mr. Wigfull said it was not so bad as it appeared to be, as the society had paid during the year two contributions of £25 (for two years) to the Sheffield University. The election of officers for the ensuing year resulted as follows:—President, Mr. J. B. Mitchell-Withers, re-elected; vice-president, Mr. A. F. Watson, re-elected; hon. treasurer, Mr. R. W. Fowler, re-elected; Mr. J. R. Wigfull, re-elected; council, Messrs. W. G. Cook, F. E. P. Edwards, C. B. Flockton, J. R. Hall, C. F. Innocent, H. L. Paterson, H. L. Potter, E. Winder, and F. H. Wrench.

Building Intelligence.

BIRMINGHAM.—The members of the health committee, together with the medical officer of health and Mr. W. H. Ward, the architect, of 29, Paradise-street, Birmingham, last week visited the site of the new sanatorium for consumptives at Yardley for the purpose of considering certain details in the plans. The new building will be erected on land adjoining the existing sanatorium, so that in reality the scheme carried out will be an extension of the present institution. The sanatorium already gives accommodation for 57 patients, but with certain alterations the number can be increased to 73. In the new building there is to be provision for 132 beds, so that when the scheme is completed the accommodation provided will be for 205 persons—namely, men 73, women 72, and children 60. The extension will involve an expenditure of between £20,000 and £30,000.

CONSETT, CO. DURHAM.—The foundation-stones were laid Sunday morning at the Methodist church, Sunday-schools, and caretaker's house at Consett the other day. The church will be a stone-built, cruciform structure, having a frontage of 84 ft.; seating capacity, 650. The schools will comprise two main buildings connected by a corridor. The school hall has a platform, nine classrooms, and sitting accommodation for 350 pupils. The other building is of two stories, embracing infants' room and class-room on the ground floor, with lecture hall and women's parlour on the upper story. A caretaker's house is attached. The contractors are Messrs. E. Taylor and Sons, of Blackhill and Newcastle; and the work will be carried out under the direct supervision of the architects, Messrs. J. E. Davidson and Son, of Eldon-street, Newcastle.

EAST FINCHLEY.—The Bishop of London consecrated, on Monday evening, the chancel section of All Saints' Church, East Finchley, N. This section, which consists of chancel, Lady-chapel, north transept, vestries, and heating chamber, completes the church, of which the nave portion was built in 1891. The church is 16th century Perpendicular in style, and externally is built of red bricks, stone being used for all doorways, windows, strings, buttress heads, copings, bell gable, etc. The roofs are covered with red tiles. Internally, the nave, arcade, and columns are of stone, and the walls red brick. The chancel, the east end of which is apsidal, and filled in with five two-light windows, is richly treated with stonework, the scheme of windows being carried along to the north transept and Lady-chapel arcades as stone panelling, the panels being filled between the

they wish they had got it, sometimes! But the careful line drawings made by the architect himself, or in his office, of the sort you mostly gave a dozen years ago, are more instructive, more helpful, and more business-like.

The garden-suburb, sprawling irregularly—effects which your amateur artist-colourists favour with in their endeavours to imitate the half-dozen colourists who know how "to do the trick," really send a good many of your plates to the butterman instead, as of old, to our portfolios.

It is too much to expect that a friendly grumble like this may have any effect but, Sir, I humbly suggest you might help by giving preference to drawings of the sort I suggest when choosing subjects for illustration. Otherwise, Sir, I should give fewer, and devote the space to really practical drawings.—I am, etc., SENE.

THE ARCHITECTURAL ASSOCIATION ATHLETIC CLUB.

SIR.—The Council of the Architectural Association have very kindly given the general committee of the Athletic Club power to elect any member of the kindred professions—i.e., architecture, painting, sculpture, and surveying—as a member of the club. We should therefore be very grateful to you if we may announce this in your valuable paper.

The club was founded in 1906, and, owing to its growing popularity, it was decided to purchase a ground of 6½ acres at Boreham Wood, which is situated near the station, and about half an hour from town. The whole of this land has been drained and levelled, and Rugby football, hockey, and cricket are excellently arranged. We have also erected an excellent pavilion, with accommodation for changing, washing, and light refreshment. The ground was formally opened last summer by Lady and Sir Aston Webb, and is considered to be one of the best in the County of Hertford. It has cost nearly £2,500, and I may say that donations to the ground fund are greatly needed.

The rifle, sniping, and target and golf branches, all of which are very flourishing. Members wishing to join the club should apply to me, c/o. the Architectural Association.—I am, etc., JOHN H. SQUIRE.

Hon. Secretary A.C.
5, John-street, Adelphi, W.C.

PARLIAMENTARY NOTES.

ARCHITECTURAL ASSISTANTS IN H.M. OFFICE OF WORKS.—In the House of Commons, Mr. Showden inquired whether a decision had been arrived at in regard to placing the architectural assistants engaged in H.M. Office of Works upon the established list; whether the undertaking given on December 7, 1911, that the wishes of all the men in this class in regard to their desire to be established would be ascertained, had been carried out; and if any scheme had been prepared, whether he would sign the motion on the proposals made.—Mr. Benn said the scheme had been submitted to the Lords Commissioners of His Majesty's Treasury, which provided for the establishment of a staff of permanent architectural draughtsmen and technical assistant architects.

A new clock was formally started in the central tower of St. Giles's Cathedral, Edinburgh, on the 6th inst., it is the fourth to be put in the bell-tower, and replaced by one made by L. Bradley, of London, in 1721. It has been constructed and presented by Messrs. James Ritchie and Sons, of Edinburgh. The work of placing the clock in position, including the structural operations, was carried out under the supervision of Mr. Williamson, the city architect.

A white marble bust of King Edward, presented to the West Norfolk and Lynn Hospital by Mrs. J. T. Ramsden, of Middleton Tower, King's Lynn, was unveiled by the donor on Friday. The bust was last year enlarged as a county memorial to the late King, and over the first landing on the new main staircase a niche was left to receive the bust of his Majesty, which has now been presented. It is the work of Mr. Walter Merritt, and is a replica of one by the same sculptor in the Guildhall, London.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real names and addresses. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasize the word "brief," and would point out the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and should be worked back on all sides, and no ceiling or top-light is desired.—Q.V.I.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

QUESTIONS.

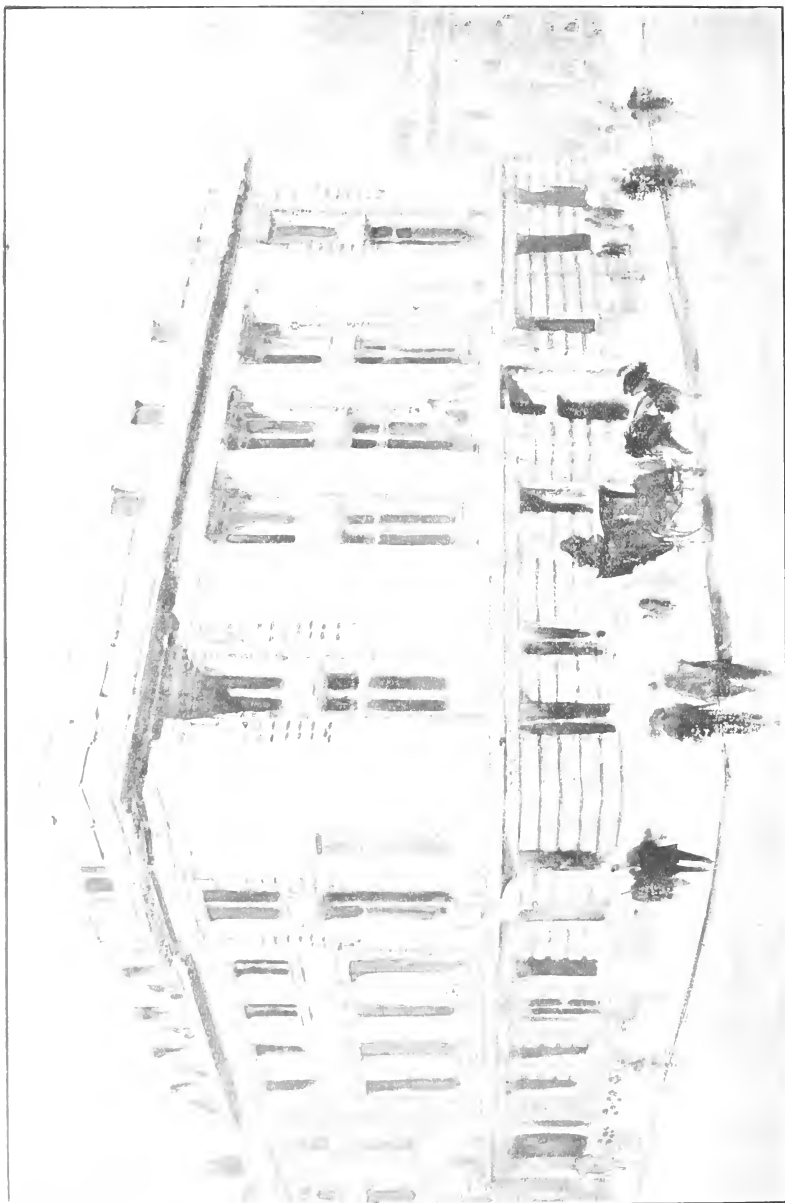
[1908].—TIMBER ROOF.—Will some reader kindly show me the best construction for roofing a room 24ft. 6in. square? The roof is to be of timber, and should be laid on all sides, and no ceiling or top-light is desired.—Q.V.I.

LEGAL INTELLIGENCE.

A BRICKMAKING MACHINE ACTION.—Messrs. John Whitehead and Co., Ltd., v. the New Outwood Plastic Brick and Terra-cotta Co., Ltd. The plaintiffs, brick-making-machine manufacturers, of Preston, brought this action at Manchester Assizes on Monday to recover from the defendants, a Whitefield firm, £234 2s. 6d., the price of a brick-making machine supplied to the defendants. The defendants denied liability, and counterclaimed for £75, which they had paid as the first instalment of the price of the machine. Mr. Langdon, K.C., and Mr. Acton represented the plaintiffs, and Mr. Freeman and Mr. Moxon the defendants. Mr. Langdon opened the case for the plaintiffs, which was that the machine—the first made under the patent—having been ordered by and delivered to the defendants, was not returned to them for some months. It was not worked continuously (the plaintiffs alleged) because the defendants were short of material; but some of Messrs. Whitehead and Co.'s men attended at the New Outwood Company's works for the purpose of supervising it at the beginning, and they left it, after a number of satisfactory tests, in perfect working order. For the defendants, it was contended that the sale of the machine was conditional on its giving satisfactory results, but that, in fact, the bricks that it made were defective. It was also contended that the makers were given notice that the machine would not be accepted, and that it must be taken away, but that they agreed to an arrangement by which the machine was to be left at the works, which were then being offered for sale, to be sold on behalf of the makers if possible. This the plaintiffs denied. The witnesses for the plaintiffs were Mr. S. Abramson, a reasonable man, and a machine, who said that on one occasion the machine made bricks at the rate of 840 an hour for five or six hours, and at one time and another made about 25,000 bricks in 24 hours. On the other side, the witnesses said the bricks were cracked, or misshapen, and unsaleable. The hearing was adjourned until Tuesday, when, in giving judgment, Mr. Justice Scrutton described the machine as experimental, and the defendants' machine made according to the patent had been delivered for ordinary commercial use before that which was sent to the defendants. It was a machine devised to mould bricks and press them in the same machine. He said the defendants kept the machine, and thus time it was delivered the machine did not work satisfactorily—the condition on which the defendants were to purchase it. As to a contention by the plaintiffs that, even if this were so, the defendant kept the machine, and thus changed the condition, he held that there was nothing to affect the conclusion he had come to on the merits of the machine. He gave judgment in favour of the claim for the defendants, with costs. He gave judgment for them on the counterclaim.

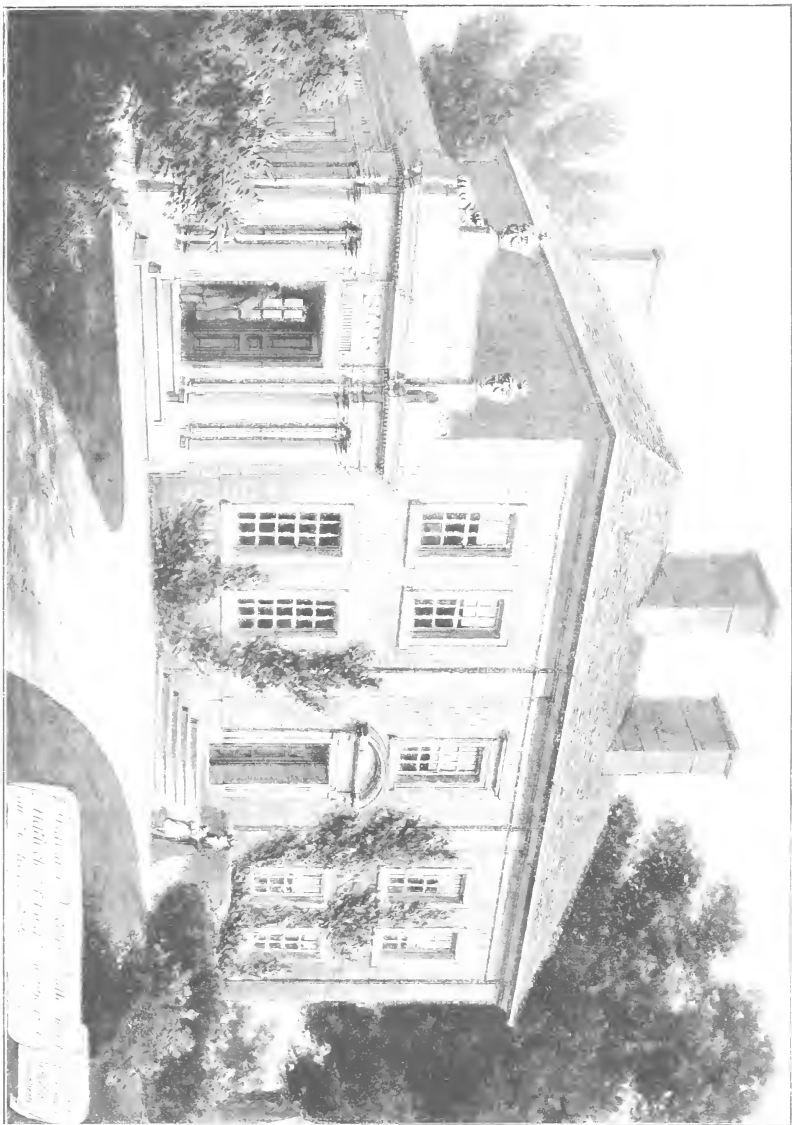
THE EUSTON-ROAD BUILDING LINE DISPUTE.—On Tuesday, May 7, a King's Bench Divisional Court, composed of the Lord Chief Justice and Justices Pickford and Avory, had before them another stop in the Euston-road building line dispute. The matter came

before the Court on a rule nisi for mandamus obtained by the London County Council and directed to the Tribunal of Appeal, calling upon them to show cause why they should not alter the line of the Euston-road for the purposes of appeal, instead of three special cases. Mr. F. F. Daly appeared for the L.C.C., Mr. A. B. Bethune for the Metropolitan District Railway, Mr. A. P. Woolton for the owners of the Adam and Eve public-house, and Mr. Leslie Smith for the trustees of the late Mr. Leslie. Mr. Bethune said a rule had been obtained ordering the Tribunal of Appeal to show cause why they should not state one special case in the matter of certain appeals. He said the Tribunal's decision as to the L.C.C. superintendent architect's certificate re a building line in the Euston-road. The ground of the rule was that the Tribunal, having given a decision in the matter of several appeals, decided to state three special cases, one for each appellant. Mr. Daly objected on behalf of the County Council to the stating of three separate cases. The Metropolitan Railway Company wanted a special case dealing with their own particular matter, because they said their point was entirely different from the others. The Tribunal of Appeal had expressed its willingness to state special cases with the points of law if the Court so ordered. Replying to the Lord Chief Justice, counsel said the superintendent architect, at the instance of the County Council, laid down a general building line in the Euston-road. The line contained several points, one of which was to Leslie's trustees, and ran from Onslow-street to Hampstead-road, and included the Metropolitan Railway Company's property as well as the Adam and Eve public-house.—The Lord Chief Justice: The County Council was the one special case stated for all the appeals?—Counsel: Yes.—His Lordship: On what ground?—Counsel: They say it would be more convenient to have the one case and one set of counsel. We object, because we say that we have a different point from the others.—His Lordship: What point are you raising? Counsel: The Tribunal has held that there is no general building line at all, because all the houses within a certain distance marked on the map have been ordered to be low. That is a decision in favour of the Metropolitan Railway Company, and that is the only point that could be raised for argument on their case. With regard to the other appellants, the Tribunal has held that the building line applied to them all right, while, on the other hand, the Tribunal has decided in favour of the Adam and Eve public-house, holding that it was built on old foundations, and that it was not a building line.—The Lord Chief Justice (to Mr. Daly): Why do the County Council object to the three cases?—Mr. Daly: The Act of Parliament says one case is sufficient, and that would be expensive. The Lord Chief Justice: The County Council want to take the building line through your property. Mr. Bethune?—Mr. Bethune: Yes.—His Lordship (to Mr. Daly): Under what section of the London Building Act do you argue that only one case is sufficient?—Mr. Daly: Section 22. Continuing, Mr. Daly said there was only one proceeding before the Tribunal, and that was as to the general line. It was not a matter between parties. If there had been a number of proceedings between different parties and about different sections of a road, things would have been different. Replying to the Lord Chief Justice, Mr. Daly said, at the present moment, the only real appellants are the County Council and the Metropolitan Railway Company. The L.C.C. would also be respondents if there were ultimately other appellants. The section of the Act dealing with the matter said that one case should be stated, and that the Tribunal should be asked to state three or more cases would be stated.—Mr. Justice Pickford: If you have only one case, which of the three other parties would come to oppose you?—Mr. Daly: They could all come, and they would object to the Tribunal. The Lord Chief Justice said, in his opinion, the rule should be discharged, for Mr. Daly had not shown the Court any section which could make them order the Tribunal to state only one case, and three respondents to the building line. There was, he thought, no power in this Court to fetter the jurisdiction of the Tribunal as to how many cases it should state.—Mr. Justice Pickford agreed. He said the fact showed that the Tribunal had no objection to the building line. There were several of those objections; but the Court was only asked to deal with three of those, one by the Metropolitan Railway Co., one by Leslie's trustees, and one by the owners of the Adam and Eve public-house. The first two appeared to the Tribunal, but the owners of the Adam and Eve were only heard as interested parties. The Tribunal decided in favour of the Metropolitan Railway Company, but against Leslie's trustees, and they were then asked to state a case with



PREMISES OF THE ROYAL SOCIETY OF MEDICINE, HENRIETTA STREET, W.
MESSRS. JOHN BELCHER, R.A., and J. J. JOASS, Architects.

THE BUILDING NEWS. MAY 10, 1912





the plan of a building with the value of volume, as seen, is not in the Middle Ages, but in the Renaissance, and still kinds remain to-day, showing the Medieval practice of using the plan sheet to reveal, after a rough drawing, a wholly new series of drawings, a description. But the stones for the building and the tools with which to work were at hand. What, then, would be more likely than that an intelligent workman should have cut the plan which would be put in his work directly upon a stone which had been, or eventually would be, incorporated in the building. A plan so made would be readily accessible at all times, and being in no sense official, could be consulted without application to the architect. No such plans, so far as we are aware, have been discovered in this country; but certain plans still existing, which have been cut on some of the stones of Limoges Cathedral, and a description of which will be found in the sixth volume of *Annales Architecturales*, appear to us to afford us some measure of support for such a speculation. The writer of the description of the stones at Limoges tells us that they are partially obliterated by the steps of visiters and of the workmen.

We may hazard the suggestion that these drawings at Limoges may have been set down by some skilled workman for his constant personal and unofficial reference, and that such a practice may have been more or less common during the erection of large buildings, both in other countries and in this. Such a theory is by no means beyond the range of possibilities, though proof of it is such beyond question is not at present forthcoming.

BRICK ORNAMENT.—VI.

PIASTERS AND TIERS, OR DWARF PILLARS. In these positions there is also the possibility of introducing both the moulded brick in a species of panelled work—or the other methods previously described. That, too, with a large amount of originality, obtaining

sketches suggest paneling applied in the conventional orthodox manner of the customary architectural repetitivist, they

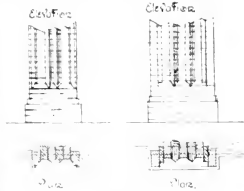


FIG. 2.



FIG. 3.

would doubtless present a better aspect if broken somewhat, after the manner indicated in the succeeding figure, No. 5. The two variations on this figure also suggest the

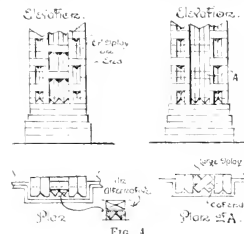


FIG. 4.

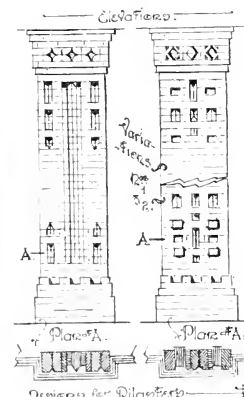


FIG. 5.

plastic effects in design. The simplest methods, and usually the customary ones, adopted with this branch are illustrated in Figs. 1 and 2—those of paneling, either in moulded brick or plain work, as shown. In some positions, where it might be desirable to introduce a broad pillar having a certain amount of decorative effect, without proving too costly, the method illustrated in Fig. 2 and Fig. 3, sometimes adopted. The method for its use, as shown, is usually obtained by a ready-made, while the intermediate straight points in bending could also be obtained in a similar manner to that shown on the latter figure, No. 4. The system of line and pattern work adapted to pillars is illustrated by two rough sketches in Fig. 3. Many other designs and variations might be introduced in this branch with exceedingly good results in this type of work. Fig. 4 shows a combination of the spay and the half-brick used in a system of panelled and sunk paneling. In many cases this might be used on end, with the herring-bone facing either laid herring-bone or laid as shown by the small sketch in the plan. Although the latter

application of plain sunk and raised work, in a restrained manner. There is really very little more trouble in building a pillar or pier in the manner indicated by the two

latter figures than in plain, solid brickwork. If we take the little extra labour involved by so doing, mass it, in a more striking feature, better results still are obtained. Thus the introduction of even a few small

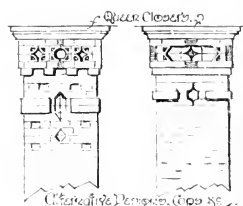


FIG. 6.

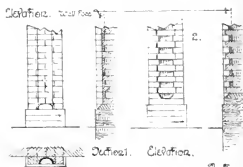


FIG. 7.

cut-out spandrel pieces, in the cavetto, bull-nose, or spay brick, with the slightest alteration in colour, pattern, or line, as illustrated by Fig. 6, involves the production of a far better "design." The simplest methods of design have, more often than not, the best results—far more than over-elabora-

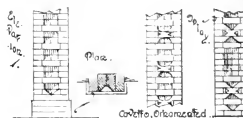


FIG. 8.

tion, which is too often the tendency with the introduction of ornament. Figs. 5 and 6 illustrate the use of the half-brick, presenting the narrow edge face; a method, although forming merely a slight variation from the 3in. face, is quite enough to prove extremely

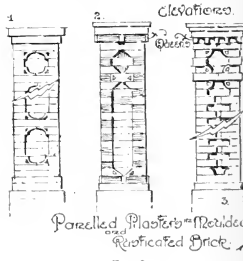


FIG. 9.

valuable in the formation of slightly narrower or fillet courses for positions where they may be desirable. Another rather original method, suitable for rustic work, is illustrated by Fig. 7. The rustications indicated in No. 2 on this figure are slightly set back, so in-

producing a more broken effect. The same system, slightly more elaborated and extended, is shown by the succeeding illustrations.

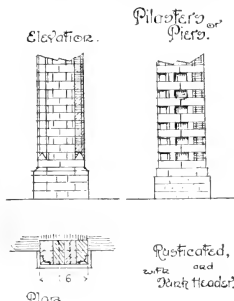


Fig. 10.

tration (Fig. 8), either the splay brick being introduced, as shown by the plan, or the cavetto, by one of the elevations. An occasional cross-brick, having the ends slightly

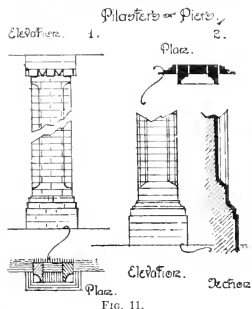


Fig. 11.

carved or cut out with small spandrel pieces, as indicated. Fig. 9, on the same principle, shows the bull-nose or half-round brick, used with panelled rustication. These are merely

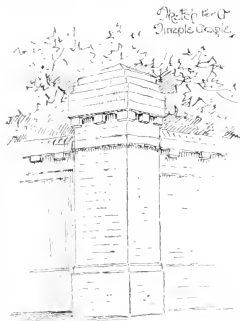


Fig. 12.

slight indications of what may be done in this direction, as the sketch designs admit of further improvement if elaborated with other variations carefully worked out. Other types

produced with the moulded brick, giving a good effect, are by its use on the angle, either as a continuous mould or rusticated, as illustrated by the oval in Fig. 10. The rusticated

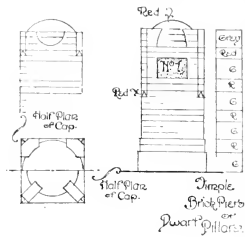


Fig. 13.

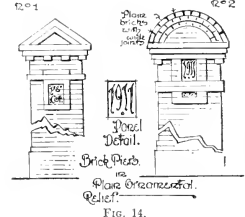


Fig. 14.

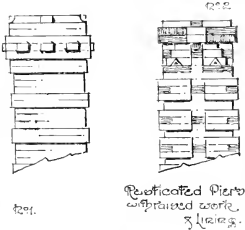


Fig. 15.

example could be admirably adapted to garden work—for instance, pergolas, etc. The cavetto, in like position, gives an equally good effect. The bull-nose, in such a position, proves unsatisfactory, although, if rusticated, it has more effect.

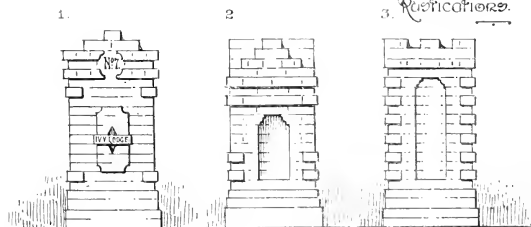


Fig. 16.

well known; nevertheless, for simple work, there is quite a fair amount of relief in such a plan brick dentil course. Neither can it be termed such an overworked type as many others. The design for a gateway pillar, illustrated in Fig. 13, with its colour key, should convey a pretty clear idea of its effect. Constructed in grey grizzles, yellow, or buff stocks, if more convenient, with low tones of red or brown bricks, it would prove very



Fig. 17.

Pier with slight relief in mixed bricks.

Fig. 18.

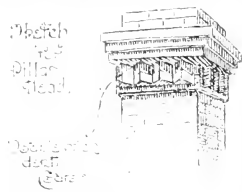
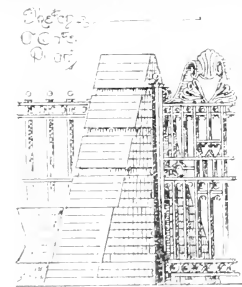


Fig. 19

It is not only, as I specially said, the king who looks to the pediment, or even to the roof. It worked at Esher, these head-boards arranged with slats, whilst the end of the hall was decorated with a series of small panelling, as shown. The panelling was arranged without cutting, by the use of painted Queen's clasers. The end design of this illustration would have been interesting for the semi-circular space fitting that being the only extra space available beyond a little figure of the queen here. The night of the 10th of March was worked up with colour washes, and for the previous illness of the king, and the queen and child.


$$1 - \frac{1}{2} \frac{1}{\sqrt{2}}$$

The various types of pillars are illustrated in Figs. 19-20. The first example is supplied by No. 67, which has two columns. Two other examples come from Nos. 18 and 19, which consist of single columns. In the type of building in question, broken bricks or pieces of brick are used for the face of the column, although the whole of its name or number as shown may be carved or introduced as a simple piece of wrought ironwork before the beginning of the pillar. In the second panel, Fig. 19, the pillars are formed with the centre, the centre-sinkings with sphinx and panted coping being so. The other two examples are further variations, with the arch brickwork divided in the upper corners of the centre-pieces. Fig. 19 illustrates in a rough sketch the use of the painted brick or stone in some cases, adapted to poor or poorer loads. Fig. 20, a rusticated and faceted pillar, illustrates a different type, which might well become simply adopted as such from so much as is required in many respects. Such a pillar need not necessarily be formed of solid brickwork throughout, but might be constructed with 4½" work on rough concrete or broken bat filling etc. It should be recognised that the various designs could be still further elaborated and developed in combination with the various forms of raised, sunk, solid broken, or massed lines, pattern work in brick, wood, or cast iron, and might also, in those directions appear to be the best, as those able to use the various systems with advantage will also be able to readily apply them in a more extensive scale.

WALTER G. KLEBY, Architect

ROYAL INSTITUTE OF BRITISH
ARCHITECTS.

The Minutes of the Royal Institute record that at the Seventy eighth Annual General Meeting, held on Monday, May 6, there were present Mr. Leonard Stokes, President, in the chair; 22 Fellows, including 5 members of the Council; 35 Associates (including 1 member of the Council); and 1 Licentiate.

The Hon. Secretary having announced the decease of Sir John Taylor, Fellow and Past Vice-President, it was resolved that the Regents of the Institute for the loss of its distinguished member be entered on the Minutes of the Meeting, and that a message of condolence be addressed to his family sympathizing with them in their bereavement. The decease was also announced of John Barlow Badock, Fellow, elected 1876; James James Brudsham, Fellow, elected 1883; Arthur White only, Associate, elected

A proposal by the President that a report from the Records Committee, just received (see below), should be included in the Annual Report was put to the meeting and carried.

The President having formerly presented and moved the adoption of the Annual Report to the Council for the official year, the motion was seconded by Mr. Henry T. Hare, Hon. Secretary.

In the absence of which ensued the following members took part: Messrs. Wm. Woodward, F. W. R. Dwyer, A. G. Sydney Parks, F. S. A. E., Herbert Shepherd, A. Munro, B. Adams, F., Albert W. Moore, F., G. Leonard Elking, A., J. Douglas-Mitchell, F., C. H. Brodie, F., Hampden W. Pratt, F., Alan E. Munby, A., Herbert A. Satchell, F., G. Ernest Nield, F. Fle and Group, A. and Percy B. Tubb, F.

On the motion of Mr. W. R. Dwyer, the committee designate the two ladies were seated at the end of the left line of the "Orange-Journal" Registration."

The action on the motion of Mr. Day, the President, agreed that no mention should be made in the Report as to the application of the Howard C. S. request of \$2,500, which had brought to be applied to the President's attention either for educational purposes or to the Archdeacon's Benevolent Society.

1. The proposition is due to the form α . Agreement between Contractors and Sub-

Contractors in the Private Standing Committee's Report, it was agreed to insert the word "new" in the second line so as to read "a new Form of Agreement".

In the paragraph beginning "This excess" in the Auditor's Report it was agreed to insert the word "and" in the second line after "1911."

Finally it was resolved that, subject to the amendments indicated, the Annual Report of the Council for the official year 1911-12 be adopted.

On the motion of the President, a vote of thanks was passed to Messrs. John Hudson (F.), and W. H. Burt (A.), for their services as Hon. Auditors, and the same gentlemen are nominated to serve in that capacity for the ensuing year.

THE RECORDS COMMITTEE, R.I.B.A.

In a report just submitted to the Royal Institute of British Architects, the Committee, of which Professor *Leathley* is the chairman and Mr. W. Curtis Green the hon. secretary, state that they had not felt it wise to push forward the geographical survey of architectural buildings which they had originally contemplated, as this work has been under-estimated, and the Committee have no other Monumental, the first fruits of whose labours have been shown in the publication of their volume on Hertfordshire. The Institute is represented on the Royal Commission by their President, Mr. Leonard Stokes, and it is a matter of satisfaction that the work is being done in such an admirable and complete manner. The Committee have no objection to the Architectural Council, but it would add to the usefulness of its publications if the buildings of which measured drawings are known to exist were indicated, and also if those buildings of which it is desirable, from an architectural point of view, that a survey should be made were recommended to the attention of students. The Committee have no objection to the Royal Architectural Educational Council, but they have suggested that the conditions of the Essay Prize so that a student may in future submit original work of his own choosing; a change which this Committee has constantly pressed for in order that some of the students may be encouraged to survey unexplored fields in architectural record. The Committee suggests that buildings of historical interest, the demolition of which is contemplated, should be scheduled from time to time in the Institute Journal, and recommended to students for measuring up. The Committee is now concerned with the compilation of a list of hotels recommended by students on their return from travel; a list of buildings suitable for students to measure; a list of buildings of historical interest; and the recording of smaller works of architectural interest likely to be destroyed.

THE R.I.P.A. ANNUAL ELECTIONS.

FULL LIST OF NOMINATIONS

The following is the full list of nominations for the annual election of Council and committees for the ensuing session of the Royal Institute of British Architects, including the "honorary list" and those subsequently nominated. The last day for returning the voting papers is Saturday, June 1, and the result will be announced at the business meeting on Monday, June 10.

NOMINATIONS FOR COUNCIL.

President: Reginald Blomfield, A.R.A.
V.A., F.S.A., Vice-President

A. A. Presidents: four seats, six nominees. +Walter Caye, Alfred William Stephens, Cross, *Edward Guy Dawber +George Hubbard, F. S. A.; *Ernest Newton A. R. A.; *John William Simpson.

Hon. Secretary: Henry Thomas Hare.
Members of Council: eighteen seats, thirty
- - - candidates. Maurice Pingham Adams,
William Henry Atkins Berry, Cecil Claude
Brewer, Arthur William Brewell, *Max
Clarke, Thomas Edwin Cooper, Henry Philip
Barke Downing, William Dunn, Robert
Evans, Frederic Richard Farrow, Banister
Flight Fletcher, *William Flockhart, William

Adam Forsyth, James Stewart Gibson (past Vice-President), William Curtis Green, Edwin Thomas Hall (past Vice-President), George Hubbard, F.S.A., Arthur Keen, Henry Vaughan Lancaster, William Richard Lethley, John Brightmore Mitchell-Withers, Charles Stanley Peach, Sydney Perks, F.S.A., Samuel Perkins, Pick, George Harold Fellows Pryne, Charles Henry Bourne Quenell, Edwin Alfred Rickards, Walter John Tappet, Sir Alfred Brunwell Thomas, Edward Prioleau Warren, F.S.A., William Henry White, Herbert Wigglesworth, Edmund Walter Wimperis, Edgar Wood, William Woodward, Percy Scott Worthington, M.A.

Associate Members of Council (six seats, fourteen nominations): Robert Akman, George Leonard Elkington, Kensington Gammell, Sydney Kiffin Greenslade, Edwin Gunn, Stanley Hinge Hamp, Frederick Robert Horns, Alan Edward Munley, Cyril Womster Smith, Digby Lewis Solomon, Harry Inigo Triggs, William Henry Ward, M.A., Septimus Warwick, Arthur Needham Wilson.

Past Presidents (ten seats): Sir Ernest George, A.R.A., Leonard Stokes (now President).

Representatives of Allied Societies (nine seats): John Brooke (Manchester Society of Architects), William Milburn (Northern Architectural Association), Alexander Nisbet Paterson, M.A. (Glasgow Institute of Architects), Arthur Clyde (Aberdeen Society of Architects), Charles Edward Bateman (Birmingham Architectural Association), Ernest Richard Eckett Grayson (Northampton Architectural Society), the President of the Edinburgh Architectural Association, John Alfred Gotch, F.S.A. (Northampton Association of Architects).

Representative of the London Architectural Association: Gerald Calcott Horsley.

NOMINATIONS FOR THE STANDING COMMITTEES.

Art Committee.—Fellows (ten seats, sixteen nominations): Arthur Thomas Epton, Cecil Claude Brewer, Edward Guy Dawber, Henry Philip Burke Downing, William Flockhart, Henry Thomas Hare, Gerald Calcott Horsley, Thomas Geoffrey Lucas, Ernest Newton, A.R.A., Edwin Alfred Rickards, John William Simpson, Henry Heathcote Statham, Walter John Tappet, Francis William Tremp, Sir Aston Webb, C.B.E., C.V.O., R.C.A., Edgar Wood, Associates (six seats, seven nominations): Ormar Maxwell Ayrton, Matthew James Dawson, Charles Lovett Gill, Sidney Kiffin Greenslade, John James Joass, Septimus Warwick, Arthur Needham Wilson.

Literature Committee.—Fellows (ten seats, fifteen nominations): David Theodore Fyle, John Alfred Gotch, F.S.A., William Curtis Green, Arthur Rutherford Jemmett, David Barclay Young, George Holford Fellows Pryne, Professor Frederick Aston Simpson, Richard Phenix Spiers, F.S.A., Charles Sydney Spooner, Andrew Thomas Taylor, R.C.A., Sir Alfred Brunwell Thomas, Charles Harrison Townsend, Edward Prioleau Warren, F.S.A., Paul Waterhouse, M.A., Percy Leslie Waterhouse, M.A. Associates (six seats, nine nominations): Frederick Robert Horns, William Bonner Hopkins, Walter Millard, Herbert Passmore, Charles Stanley Peach, Cyril Womster Smith, Arthur James Stratton, William Henry Ward, M.A., Herbert Winkler Wells.

Practice Committee.—Fellows (ten seats, twenty-one nominations): Robert Stephen Ayrton, Walter Cave, Howard Chaffell Clarke, Max Clarke, Alfred William Stephens Cross, Matt. Garbutt, George Hubbard, F.S.A., John Hudson, Frederick William Marks, John Brightmore Mitchell-Withers, Henry Percival Monkton, Charles Walter Moore, George Ernest Nield, Albert Stanley Peach, Sydney Perks, F.S.A., Herbert Arnold Satchell, Herbert Duncun Searles-Wood, Alfred Saxon Snell, Henry

Tanner, jun., William Henry White, William Woodward, Associates (six seats, nine nominations): Horace William Cullett, Kensington Gammell, Edward Greenop, Percival William Hawkins, John Nixon Horsfield, Charles Edward Hutchinson, Herbert Hardwick Langston, Herbert Shepherd, Harold Arthur Woodington, Science Committee.—Fellows (ten seats, ten nominations): Harry Percy Adams, Ernest Robert Barrow, William Edward Vernon Crompton, Bernard John Ducke, John Dunn, Frederic Richard Farrow, Ernest Flint, Horace Gilbert, George Hornblower, Ravenscourt Elsey Smith, Associates (six seats, ten nominations): Robert John Angel, William Robert David, A.M.C.E., George Leonard Elkington, James Ernest Frank, Alan Edward Munley, M.A., Henry Albert Smith, Digby Lewis Solomon, B.Sc., Ernest William Malpas Wonnacott, Ernest Alexander Young.

A star prefixed to a name denotes proposed election; a dagger signifies change of office.

ENGLAND'S LATEST PORT.

The new deep-water dock at Immingham was opened for traffic on Wednesday, May 15. This Eastern gateway to industrial England will have a great influence upon trade between England and the Continent.

The attractions which will bring shipping to Immingham are:—First, the saving of time and money in coaling; secondly, the rapid modern equipment for loading and unloading cargo direct from rail to ship, unsurpassed for speed and economy; and thirdly, the very short and cheap rail haulage to the great and small industrial centres, and to the most densely populated sections of England.

The sister port of Grimsby has more traffic than it can handle. Hull, fifteen miles up the river Humber, depends upon the tide. Immingham is only a few miles above Grimsby, and is independent of all tides. A vessel can round Spurn Head, steam direct to the Immingham jetties, at any state of the tide, and immediately her hawsers are fast can be taking bunker coal at the rate of 500 tons per hour; or at any stage of the tide the great dock can be entered. This is true of no other port on the East Coast. No towing conveniences are necessary. Pilotage and conveyance dues are lower than at any competitive dock on the Humber. Taken all together, the charges to shipowners and to shippers are so low that Immingham can compete successfully with any other port in England. Already some of the most carefully-managed firms are beginning to secure positions for factories and works midway between the coalfields and the dock.

The facts which give Immingham Dock its great importance are its storm-protected harbour, its deep-water channel, its proximity to the great coalfields, and its cheap, quick, well-organised railway connections with all industrial towns, large and small, throughout England.

Coal, grain, timber, and produce will, naturally, be the four most important commodities which will pass through Immingham Dock, and in each of these departments the most rapid and economical of modern systems have been installed for loading and unloading. No matter how great the traffic may be, the enormous accommodation for trucks, prompt shunting, and quick making up of trains make the slightest delay impossible. The tracks throughout the dock property are operated by the latest and most approved electric power signalling apparatus. Telephone communication will link the dock instantly with any of the great or small industrial and business centres throughout England.

The company has had long and successful experience in dock management, and its docks at Grimsby have raised that port to a condition of great prosperity. There will be nothing experimental, therefore, even in the slightest detail of the construction or operation of the new dock. So Immingham will have the advantage of a management tried and proved by many years of success, and will

be free of the disadvantages attached to old or out-of-date equipment of docks.

On the Humber, leading to the dock gates, are two jetties. At the western end of the jetties are two coaling jetties. The western coaling jetty vessels can coal without entering the docks, taking from a barge that can load 500 tons per hour, and which has capacity for 320 loaded waggons on the siding that feeds it. The eastern jetty is for passengers and express traffic. Between them is an expanse of still water, in which vessels approaching the dock gates are protected from the side-sweep of the current.

Guided by the jetties, vessels approach the dock gates. The entrance locks are 240ft. long and 90ft. wide. At high water there is 4ft. on the sill, 2ft. 6in. at low water, 30ft. to 50ft. in the docks.

The central basin is 1,000 ft. square. Each of the two arms of the basin is 1,250 ft. long and 350 ft. wide. Two of these basins are completed, and two will be made when extensions are necessary. In all, exclusive of locks, there will be 45 acres of water in the dock.

There will be one mile of dock wall for shipping, and 170 miles of railway within the dock property. The whole of the back of the dock basin is used for coaling, and as coal export is the foundation of Immingham's maritime advantages, the utmost care has been devoted to perfecting devices which will save every possible minute and every fraction of a farthing in the cost of handling the coal. Seven great hydraulic hoists, operating almost automatically, are ranged along the quay. One of them is movable, so that coal can be shot into two holds of a vessel at the same time, to avoid breakage of coal, which injures its value, every hoist has a system of radial extension shoots which slide the coal into the hold of a vessel. The coal need not be dropped more than a foot or two.

The facilities are so complete and perfect that the loading of coal can go on, day and night, with the ceaseless regularity of clock-work. The loaded coal-waggons come to the hoist by gravity, the hoist lifts the loaded wagon, and its coal is carefully tipped out of the end or from the hopper bottom into the vessel. The wagon is placed on a higher track, and goes by gravity to the tracks where the "empties" are made up into trains. The seven coal-hoists are capable of shipping at the rate of 5,000 tons per hour. Each of the seven basins has eight gravity sidings of its own, with 320 loaded waggons or 3,200 tons, waiting for loading. Back of these gravity sidings are the great train-yards, used solely for loaded coal trains, and another great yard used solely for empty coal-waggons. Empty trains leave the yards without getting in the way of loaded trains. The dock storage facilities will accommodate 174,000 tons of coal.

There is also a graving dock, 740 ft. long and 50 ft. wide. The dock has its own power plant for hydraulic power and electricity. Strong hydraulic capstans are placed at close intervals along all the quays. The dock property is 2½ miles long with a river frontage of 1½ miles. Among the numerous valuable sites for factories and works that are still available in the vicinity of the dock are several fronting on the Humber, so that factories by building a jetty can load and unload their own boats.

"BUILDING NEWS" DESIGNING CLUB.

AN ARTIST'S COTTAGE, WITH A STUDIO. The genius loci of South-Island is not exactly embodied in any of the schemes received for the Artist's Cottage as specified for the April subject, the site for this holiday home being presumably on the eastern coast, a few miles inland—say at Wallsend, which is a favourite building-ground for artists. Of course, the lead thus afforded to the competitors can only be dealt with by an accession in a tentative manner, because everybody belonging to our Club—numbering, as it does, members all over England—may not happen to be acquainted with the

de, referred to. Nevertheless, it is expected that well-informed architectural circles should make themselves familiar with the historic building work in various localities, particularly those where old traditional methods are blighted, and were so locally distinguished, as happened in East Anglia for instance.

The designs which we have chosen are: "Why Not?" first, "Five Towns," second, "Burghwallis," third. The following is a synopsis of the Conditions set for use of the competitors: "An Artist's Cottage, including a Studio, intended as a holiday home near Southwold, on the eastern coast, about a half mile inland. The plot is 1/2 acre, and the aspect is south-east; but the studio must have a north light. The accommodation to comprise a good entrance hall and a family living room, 12ft. by 16ft., and a study, a studio, 25ft. by 17ft.; a good working kitchen, 12ft. by 10ft.; 6 bedrooms, 4 bathrooms, and offices. Also a cycle shed. Upstairs there are to be five bedrooms, a bathroom, and w.c. The studio will serve as a 'drawing room.' The style must be adapted to brick and tile, with wooden casings and bars, painted white. The detail to be simple and suitable, broadly of modern type, being intended. Two or three plans, two elevations, one section, and a view. Scale of the geometrical drawings to be 8ft. to the inch."

"Why Not?" sends distinctly the best scheme. The gable to the entrance front is typical of the kind of building stipulated, and the plan is, on the whole, quite admirable. The double-hipped mansard sort of roof over the studio does not harmonize, however, with the half-timbered part over the entrance door, and the break with the valley between the studio roof and that of the main building has not enough protection to sufficiently justify any break at all. The effect would have been so very much better, because more simple, had "Why Not?" run the lower slope of the studio roof right through and stopped it against the projecting gable over the kitchen offices. This would have added a part along as sort of verandah, instead of the wooden hood suspended over the entrance. The landing and bedroom windows might then have been treated as a dormer, for one would have been less rest than two. We should have preferred the studio fireplace, being located in the corner, to serve in the kitchen, and a pretty feature could have been readily invented outside by combining the dormers with the chimney, instead of placing it at the east end as at present. No doubt the little windows, however, as seen in the section, would look nice enough. One fireplace at the end of so capacious a room, probably, would be unequal to the task of warming the other end of the studio and besides, the central fireplace could have been made a good feature at the end of the vista from the hall, as seen when the sliding doors were open. Had not this design been so interesting, we should have not ventured upon these suggestions. The next manner in which the w.c.'s are put out of immediate sight is commendable, and the general conception of the plan is capital. The scheme is modern, with the best of interest or quaintness, also avoiding any surcharge of utility. Considering the position of the service porch, the dining room door, perhaps, might have been hung the other way on, or even it could have opened into the hall. The yard gate crosses the back premises; but perhaps the kitchen, facing south, would get too hot in the summer, and, besides this, the front window commands the lawn, thus adding to the effect, and we do not think it to be hypercritical, though the porch is a little plain and long, and may be useful to the architect in this review besides. "Why Not?"

"Five Towns" might never have heard of Southwold, as far as any local influence goes, and is accordingly ignored. His plan has a few merits, of that placed first but the one which is the only one which follows on the second. The layout

of his plan, which starts on the assumption of a sea view to the south east, is disfigured by a canted bay to insure a north light; but no attempt is made to get greater height for the studio. Small water-colour pictures, of course, hardly effect this requirement; but in a holiday home a painter often needs accommodation for bigger work. We did not preclude that idea in our Conditions, which made no pretence at fixing up every detail; otherwise nothing would be left for the imagination or enterprise of the Club members. The big door into the studio to the verandah indicates some presumption on the part of "Five Towns" that large canvases might have to go in and out. Why the similar big door to the living room should be also provided we cannot say. We are not shown which way these doors are to open; but either way they would be awkward. The poky hole sort of little lavatory looks bothersome and awkward, too, for all going to the convenience beyond. The stairs rather get in the way of the front door, and the kitchen door is too near the portal, intruding cooking smells on callers. The landing is wasteful of space, and the w.c. is too much in evidence. The drawings are good, but the windows creep up casually all over the place, particularly on the entrance side, where the stink pipe makes a bisecting line up the gable in an ungainly fashion.

"Burghwallis" sends a quaint proposal, worked out in a way which merits recognition, and we do this gladly, because he has persistently tried to score so long. By saying this we by no means say that he is free from faults, but few non-competitors can claim that standard, in spite of all their assumed cleverness. It might be an easy task to pull such a plan as this to pieces, but we refrain from attempting the effort, though such cranks as the too-prominent w.c., with its V-shaped seat, in the angle or the stairway running almost on to the front entrance, cannot be overlooked. The fines and the fireplaces also look very pimply. The west elevation is very pretty, and the entrance approach is unpretentious, picture-que, and pleasing.

"Black Diamond" (device) is rather successful, presenting several good points—so good, in fact, are they that we can acknowledge having had some difficulty in deciding his claims for third place. The hall, however, is larger than its contrivance justifies, being really treated too much as a passage-way to be suitable for comfortable use as a sitting-space, particularly with the big draughtily well-hole over it. The dormer above furnishes its only means of lighting. The landing is not economical enough for so small a dwelling. "The porch" hardly justifies the term, and the stairs would run through the right hand window and the fun light over the door. The studio answers more to the arrangement of a drawing room, and does not north light. The w.c. off the main landing is not screened at all; the same remark also applies to the bath. The design of the verandah, seen on the side, is not at all pleasing, and the exterior is cut up too much.

"Ne'er do Well" also treats his elevations in a restless manner, making the house too much like a villa with odd parts of the roof disconnected, and further disturbed in effect by prominent chimneys, crowding up as if by chance. The hall is not lighted, and the kitchen is too cramped. The perspective is pleasantly drawn, and "Ne'er do well" is doing better.

"Liver's" cottage is oddly contrived, and outside it looks uncommensurable to be thought singular. A half's eye window, next the front door to the clockroom, lights that room, and is really with an ugly window, every irregular in shape, owing to the front studio, which has a pair of awkward bedrooms set above it in the roof. The general result is cottage-like, and, therefore, so far as commendable, even if as a house it is too queer to be comfortable or effective.

"Verities" also quite out of the ordinary, is by no means usefully suggestive. A V-shaped lavatory, fitted with a seat of that pattern, has

a lofty look, finished with a pent, and a clock occurs over, the effect being too important as contrasted with the little, squeezed-down doorway to the entrance, lodged in as it is under a long line of roof. The plan may not be lacking in ingenuity, but it makes a poor example of house arrangement.

"Luna" affects a plain Georgian treatment which is not well adapted to an Artist's Cottage, with a very awkward kitchen also spoiling the shape of the hall, which, by an oversight, has no screen to the doorway so necessary on an open site for such an apartment intended for sitting in. The studio is merely a drawing room, with no direct or proper window to the north. The perspective is indifferently delineated.

"Nota Bene's" rough-cast house is laid out after the manner of "Burghwallis's" plan, but it is not nearly so satisfactory. The studio has ugly posts in it to carry a wall above, and the internal economy of the building is very inconsequential and crudely managed. The sheet of paper used is not according to the rules.

"Longbanks" is *not*, but devoid of an appreciation of the quiet reserve so essential to cottage design. He prefers depending on detail, with a mixture of brick, timber, and tile-hanging duded about, lacking rhyme and reason. The semicircular arcade for the broken-up and angled verandah is most incongruous.

"Jorvie" aims too high, with side pavilions flanking his sort of Queen Anne house, garnished by statuary in front, quite out of accord with the little scheme we provided for. He has spared no pains, nevertheless, and has drawn some details which are not particularly happy. His plan is a poor one, the odd sort of studio ill becoming so palatial a piece of building like this. "Jorvie" ought to have done much better, his initial fault being the cause of his failure, having failed to grasp the correct idea.

"Little Willie" sends a rambling plan, lacking in interest, besides not being effectively drawn. We can scarcely criticise such a proposal.

"Cheer Up" depresses one by the inane inaptitude of his strange ideas concerning an artist's needs. The fat statue at the turn of the main staircase is typical of his incoherence, and the accidental way in which the parts of the plan tumble together make a very poor result, though labour has been lavished ungrudgingly on the drawings.

"Mak" would have ranked higher had his work been finished, the view being blocked in only. The elevations are better than the plans.

The view submitted by "Ardeleigh" has a cramped appearance, very out of accord with the elevation. The studio has good large windows, and extends into the first floor. Compactness of plan has led the author to adopt several bad expedients.

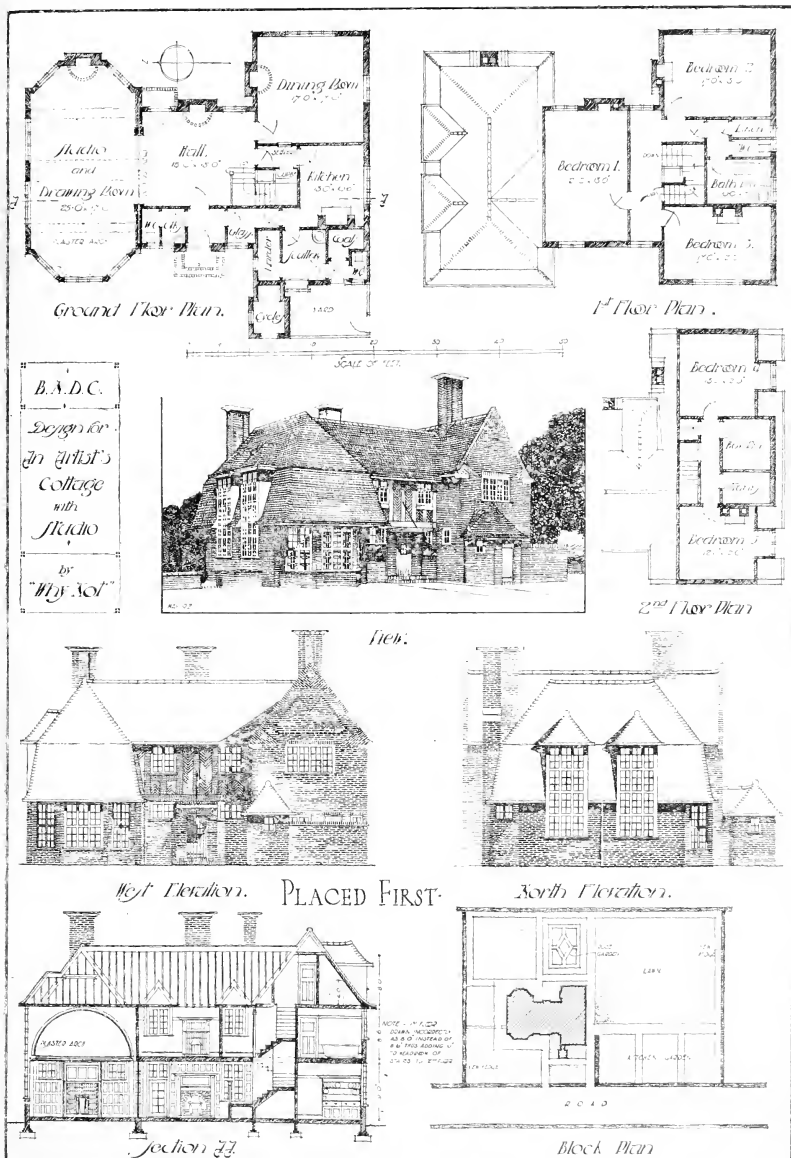
"Scot" gives us a pitch-dark central hall, in a square plan, set diagonally, with one corner cut up on one angle so as to form an entrance. The general result being very inferior, and externally the design is poor.

"Windmill" fills half his sheet of paper with an inkly sort of view, backed by badly-drawn trees. The elevations are worked out in thick lines, though in themselves the fronts are rather good. The first-floor plan is indifferent as compared with the ground plan.

The remaining designs are by "City," "Jupiter," "Yokel," and "Sirrah."

The Legislative Council of Jamaica have decided to undertake the sanitation of the whole island. The work will probably occupy several years, and about £250,000 annually can be spent on it. The expenditure on other public works was this year about £200,000.

The Corporation of Glasgow have organised a smoke abatement exhibition to be held from September 20 to October 12 in buildings in New City road. The corporation are appealing specially for exhibits of all kinds of smoking works appliances for the abolition of smoke, and there will be many exhibits of smokeless fuels, patent appliances for boilers, and gas-heated furnaces.



It is impossible to destroy them. An amusing incident was told of one of the prominent builders of New York. He was tearing down an old building preparatory to erecting a dwelling house for himself. This superintendent was anxious to make a record for himself, so as the walls were thrown down he carefully cleaned all the old brick and piled them in the rear of the lot. The owner came around one day and, seeing the prospect of a safe treasure, said to Tom, if you have any use for these you may take them," as the owner did not care to use any second hand material in his own house. Tom took the bricks, carted them to an empty lot a few blocks away, piled them up, and counted them. Some weeks later, when figuring on his job, the owner cursed his purchasing agent for the high price of brick.

The latter informed him that there was a scarcity and that it was difficult to get good ones at any price. "But," said he, "I have an opportunity of purchasing some first-class seconds, almost as good as first quality, at 5.75d. per thousand delivered." "Why, take them, you d— fool, take them," said the boss. Whereupon the agent called for Tom and told him he would take the seconds, and Tom hauled back the 60,000 at 5.75d., which the boss had given him. The superintendent, recognising these as the identical brick that he had cleaned up, fearing the boss, protested to the purchasing agent. About two days later the builder came around, and seeing his own seconds back in the job, a greater part of them having been used, said to the superintendent—"Where in— did you get these bricks? What in—are you using those for?" "Why," said the superintendent, "the purchasing agent told me that you told him to take them." "Why," said the boss, "the d— fool told me he could get some seconds, and I thought he meant new brick just a little off, not second-hand bricks you never can destroy the damn things." What about second hand concrete? Did you ever see any? Is there any difference between the indestructibility of brick and concrete?

I have said that reinforced concrete is not inexpensive construction. It is a well known fact that only in cases where the cheapest kind of unskilled labour can be used in building frames, forms, and moulds, compared up to reinforcements, etc., is there anything, so far as expense is concerned, in the favour of concrete, and in most instances there is a balance on our side. In our Eastern publicity campaign, of which I shall have more to say later, we found that in sixteen fire-houses, figured in concrete and brick saved the city of New York 180,000.00d. by the use of brick construction instead of concrete. I have said you cannot build as quickly; and if this is so, this too is a great element of cost when the rents are a severe and large item. In one instance, in the city of New York, a building was erected on a plot where the rental value was 280,000.00d. The concrete buildings, according to figures of the owners, took about six months longer to erect than the brick buildings have taken to have erected a brick building, making a loss of 140,000.00d. To sum up in a word, an inferior form of construction, with inferior material, which does not save any money, which is, at best, only an experiment, which in most cases is criminally unsafe, is preferred over the only indestructible, fireproof material against whose use no word has been said. Hence, the best of the creators, have stood still; and not until we have allowed the concrete interest to get a start, so that now, like a glacier, though moving slowly, yet carrying all before it, do we awake. If we wish to break up this glacier and destroy its effectiveness we must McManara our way through it. Conditions exist here, these conditions, that must be changed.

Having briefly reviewed conditions and having diagnosed our disease and found a remedy, let us see, first, how it may be employed to get the best results in the shortest possible time. Public opinion is the creator of public works. Arouse the people and convince them that they are being tricked, and they will turn upon those who have deceived them and rend them in twain.

A CAMPAIGN OF PUBLICITY.

Last year the manufacturers of the Hudson Valley determined that they would launch a campaign of publicity notwithstanding the fact that they had gone through two years of hard times, they raised 5,000,000d. for immediate needs, and pledged to the committee such other financial assistance as might be required, provided, of course, the original investment demonstrated the wisdom of the plan. We found they had a serious problem right at hand. Under a proposed bill of the Legislature a new charter for the city of New York was authorised, and the committee had been at work upon the draft in anticipation of the enactment of this law. An inspection of the proposed code revealed the fact that someone had curiously left out the word "brick" in the construction of piers, fortings, and in certain walls—that concrete, concrete blocks, and other inferior substitutes were specified; in a word, that about fifty per cent. of the work where brick had been formerly used, concrete or some other substitute was specified. Rather serious, was it not? An annual demand of about 1,000,000,000 reduced to 500,000,000. Up to date the code has not been put through, if it would have slipped through had it not been for the watchfulness due to the increasing interest in our plan of publicity. The next proposition we faced was an advertisement by the city for the construction of twenty-one fire-houses and a number of police stations of concrete—no brick. We immediately took up this task, and suffice it to say, the plans were revised, specifications corrected, and bricks were called for, and contracts have been awarded for brick construction: millions of bricks to be used where concrete was to have been used. The next one, a much larger proposition—viz., brick construction in subways. It is true we have very little to show for our efforts in this direction at present, but we can report progress, for, already, we have secured the use of brick in one section of the work where concrete had been specified.

ONE HUNDRED THOUSAND DOLLARS FOR PRINTER'S INK.

I propose that we raise at once the sum of 100,000.00d., proportionate subscription, if possible, to be based upon gross sales. The organisation of a national executive committee to take charge of the same, with a managing member in each state; headquarters in New York and Chicago and some city to be later chosen west of this city. The employment of a few agents, capable employers and manager, whose duty it shall also be to immediately visit any point where the collapse of a concrete structure is reported, secure photos of the same and such other evidence as might be obtainable from those residents of the town who might be willing to furnish valuable data; that, in addition to this, a portion of the fund should be used in sending clay product exhibitions in the larger cities of the country, wherever the executive board might determine they should be held.

IMMEDIATE ACTION URGED.

As the East is the stronghold of the concrete interest, an immediate invasion of that territory and the opening of a wide spread campaign all along the line should be begun. No time should be lost in the organisation of such a campaign. Already Bills have been introduced in the various state legislatures looking to the exclusion of brick in the various stages of fireproof construction.

"BACK TO BRICK" SLOGAN.

An aggressive fight for the use of brick today means the saving of thousands of dollars—yes, I might safely say millions of dollars—to manufacturers in the future. This should be our slogan. Let the National Brick Manufacturers' Association or the Builders' Brick Association—which, by the way, I should mention here and commend for the valuable work that they have done, and which I feel ought to be encouraged by the international organisation. Neither can this work be done by the International Clay Product Exposition Company. They have done a great work, and are entitled to considera-

tion; but the proposition which I stand for is one that is independent of every other movement of this kind which has yet been attempted. This money quickly appropriated and wisely expended over a period of twelve months will create such an interest in the "back to brick" campaign that anyone contemplating the erection of a building will be alive to the dangers of concrete construction, and the superiority of clay products construction over that of all inferior substitutes. We can build a more beautiful structure. We can build more economically. We can build a house that will withstand the ravages of time; and, in addition to that, we give a life insurance policy to the public—free of charge. Why pay life insurance and at the same time build structures of concrete which are unsafe and destroy life. A fund quickly raised, properly distributed, and wisely expended will bring to each contributor a harvest a hundredfold. But now is the time to sow seed.

TWO USEFUL BOOKS.

"The Principles of Structural Mechanics," by Percy J. Waldram, is offered by the author in a more readily assimilable statement of the principles underlying constructive practice than the average treatise on structural mechanics. A useful feature of the book is the chapter on "Wind Pressures," a valuable item in which is the summary, by Dr. Stanton, of the results obtained from the experiments at the National Physical Laboratory at Teddington.

"Modern Practical Design," by G. Woodliff-Rhead, is the work of a practised teacher, who, wisely, has not set out to construct new models, but to meet common needs and explain technique, tools, and practical methods. It should be useful to teachers, students, and craftsmen, covering as it does the syllabuses of the Board of Education in Elementary, Advanced, and Honours Design. It is fully illustrated.

ARCHITECTURE IN THE CAPE. WORK OF THE CAPE INSTITUTE OF ARCHITECTS.

The annual general meeting of the members of the Cape Institute of Architects was held in the board room of the South African Association of Architects, on the 19th of the President, Mr. A. H. Reid, F.R.I.B.A., occupied the chair, and amongst others present were Messrs. J. Parker (Vice-President), C. H. Smith, F. K. Kendall, F. R. E. Sladdin, W. G. Fagg, C. H. Edwards, G. C. H. Seelgrub, J. Lyon, J. Morris, J. Cran, jun., F. C. Kirsten, A. Forsyth, and E. Austin Cooks (Hon. Secretary and Treasurer).

Mr. Reid delivered his presidential address, which was as follows: As it would appear that no presidential address can be considered complete without reference to the burning question of architectural competitions, may I commence a review of the subject by thanking Mr. F. K. Kendall for his paper on the subject last year? If I may be permitted to review the paper and the subsequent correspondence without entering into the arena of professional politics, I would venture to express the pleasure that I felt at the sincerity that pervaded the whole discussion. My one regret is that I could find nothing new. The same arguments and suggestions have been before us for 30 years; human nature is the same to day as it was then, and the panacea is now, as then, a loyal, unselfish combination to fight the evil. The remedy is entirely in our own hands, and the first step is what I have been striving for since 1882, namely, the statutory control of practising architects by a Legislative Registration Act. All but the constructive professions are under the authority of licensed Executive Boards or Departments, and we who have the spending power, health, and comfort of the nation in our hands, are

* Both published by B. T. Batsford, 91, High Holborn, W.C. 7A. 6d. each.

more or less disorganised body. I do not propose to enter into the sordid side of the matter, though we must all admit that it exists, and must exist, in any section of society that leaves the field open to the unregulated operation of the professional class. Until that control is secured, all the odds is to melt into the public mind the notion that they are being deceived by incapable and irresponsible people, and further, to expose any abuses that may present themselves, especially when their perpetration is calculated to affect the honour of our profession and the interests of the public.

COMPETITIONS COME TO STAY.

It seems to me a waste of time to enter into the question of the wisdom or otherwise of having architectural competitions. They have become an established fact, and, I believe, have come to stay. The arguments in favour of them when applied to designs for large public buildings, or where public money is involved, seem to me such an easy way out of a difficulty that members of our public bodies can hardly be blamed for favouring the system, if only as a means of escape from the importunities of a certain class of architects, who have probably approached them with a view to securing the work. Such persons would, of course, be sent being charged with unprofessional conduct, but it is just such tactics that render the work of our professional bodies all the more difficult. I submit, however, that it is so far satisfactory to find that the same individual members of those public bodies take a different view when their own unhampered interests are at stake. In their hearts they are suspicious of the competitive system, where professional ability and integrity is in the balance with their own material interests. As intelligent business men, they prefer to save time, and to place their interests in the hands of men they can trust. And there, I feel, we must leave it, and endeavour to make the best of a necessary evil by exerting our influence through our representative institutions, towards securing honourable and fair treatment as a condition precedent to giving of our best to the public.

ARCHITECTURAL ALLEGATIONS.

My experience of the world has convinced me that right will in due course prevail; the ordinary layman is not a fool, though he is often misled by interested parties. He is often misled by his mistake, and then our day begins. In my travels up country I have often wondered how a community could submit to the awful architectural aberrations called, by courtesy, "buildings," that they have paid the most extravagant prices for. But inquiry soon proved that, being untravellers, simple folk, they did not know good from bad, dear from fair cost, the difference between a qualified architect and one who is only so in name. They do not know what architecture, honest construction, or economy in designs means, and thus become the victims of the charlatan. Here the next generation will not be proud to have been led then by their fathers. When the Registration Act is passed the Public Health or District Committees provided for in the more intimate touch with the public than our existing centralised institutions can possibly give.

Let us check the march, while it goes into the wrong direction, of the competitive system. We all know it. The point is to prevent competition with the public from end to end of the line, and to do not mean the stopping of a building for a time to allow of a check being taken. It is more material to check the march, and a local condemnation of a building competition that is not in the public interest, and to see that the public body is not misled. How to do this is another matter, and the best can only be arrived at by a process of trial and error. The first step is to make the members who of themselves are not satisfied with the results of a competition, and judging from the

course pursued by Government since Union regarding their architectural work, there can be little doubt as to what they have been induced to think of architectural competitions.

LIMITS OF FAIR COMPETITION.

Perhaps it may be as well if I briefly record the leading points that the profession seem to have fixed as being the irrevocable limits of a fair competition; fair to the competitors and fair to the promoters. In the first place, it is, I think, generally admitted that the process is a very slow one and quite impossible if time is of any consideration; that any but the direct single system is too expensive and too protracted for all concerned; that absolute and inviolable anonymity is essential; that one or more professional assessors of the highest standing should be engaged and have absolutely free hands in drawing up the conditions of competition in consultation with the promoters; that the award of the assessor should be accepted and honoured by the promoters and the competitors; and that the author of the premiated design should be engaged to carry out the work upon the usual terms, unless the assessors should give good reasons for his being associated with a second party or for terminating the contract when payment of the agreed premium is made. That, in cases the promoters decide for some unforeseen reason to abandon or indefinitely postpone the execution of the work, the author of the accepted design should be paid a commission of 15 per cent. upon the amount of his estimate, and be guaranteed employment to carry out his design when it is proceeded with; that the award of the assessor be divulged to each competitor, and all the designs be exhibited, unless a competitor wishes his to be withdrawn; that the name of the assessor should be divulged in the conditions of competition; that nothing original in any of the unsuccessful designs should be made use of without the consent or remuneration of the author of such design; that all the premia offered shall be paid within a reasonable period upon the certificate of the assessor; that the total of all premia offered should represent at least 15 per cent. upon the estimated outlay, and that the condition be accepted by all parties as a binding contract; that the rules and regulations of the Royal Institute of British Architects should be recognised by all parties as binding upon them; that any fee or deposit carried out should be demanded by the promoter, and the conditions should be returned to the payer if he declines to compete and returns the conditions within one month of receiving them.

DUTIES OF ASSESSOR.

The duties of the assessor should be as follows:

1. To draft the conditions or terms of contract between promoters and competitors in consultation with the promoters, and to decide with them what amenities should be given as prizes to competitors.
2. To fix a time and place for the delivery of drawings, etc.
3. To prepare all necessary information regarding the site, such as levels, aspect, surroundings, geological features, water supply, etc.
4. To ascertain the accommodation required by the promoters, and to schedule same giving approximately the floor area and minimum heights of rooms or departments where possible.
5. To ascertain by rough sketches or otherwise the approximate cost of the work, or, as an alternative, to give approximately the cubic contents of such a building as that required.
6. To decide the number and description of drawings required, the scale to which they must be drawn, and how to be finished and mounted.
7. To limit the number of designs that any competitor may submit.
8. To decide how the absolute anonymity of competitors shall be secured.
9. To decide and state any reasons that

will place the work of any competitor out of the competition.

10. To receive from and reply simultaneously to any questions submitted by competitors, and to circulate both questions and replies to all registered competitors. To fix a date after which no question will be considered.

11. To arrange how competitors' designs are to be received and marked, and to be present when the names of competitors are ascertained.

12. To see that each competitor is informed of the result of the competition, and to arrange for the safe receipt and delivery of the drawings, etc., submitted by the authors.

13. To assist the promoter and successful architect, if necessary, in arriving at a fair and proper agreement for the completion of his duties.

The foregoing appear to me to be the leading features to be observed in a fair and reliable competition, and I submit that it is quite impossible for any committee of laymen to do themselves justice unless they consult and support a professional assessor. This is our strongest point, and it is for the profession, individually and collectively, to combine and insist upon its observance by the promoters of competitions, or as an alternative to decline to compete, and thus in time bring home to promoters that they are acting against their own interests.

TOWN PLANNING.

The sub-committee appointed by this Institute to assist and advise the Cape Peninsula Publicity Association has done all that has been required of it, but the municipal authorities do not seem to appreciate the value of our Council's advice regarding the artistic possibilities of the foreshore and public gardens. We can only watch the trend of public opinion until the unification of Cape Town and the suburbs is an accomplished fact, and then take steps to make our influence felt. We must, when the right time comes, press home the fact that mere building construction and sanitation can be supervised under Statutory Acts and Regulations by engineering departments and their building inspectors; but the highest architectural, hygienic, and artistic advice is required in problems of collective architecture, street planning, and subdivision of estates before they are sold, and the maintenance and restoration of old buildings that possess any antiquarian or architectural interest. The Government of India and the City of Vancouver have both learnt the necessity of consulting eminent architects and engineers regarding the comprehensive planning of the new capital of India at Delhi and the park and street system of Vancouver respectively.

NATIONAL ART GALLERY.

It will be remembered that last September a deputation of artists, architects, and citizens interested in the establishment of a National Gallery of Art, waited upon the City Council and asked the assistance of that body in the movement. As representing the artists, Mr. Crossland Robinson stated that his profession wished to work in unity with our Institute and other kindred art societies, and suggested that as the gallery would only be wanted for two months in the year for art exhibition purposes, it would be available for the exhibition of the applied arts and architectural works during the rest of the year.

Since then, I understand, the South African Society of Artists have been busy on their own account; but the co-operation of this Institute has not been solicited. At the exhibition of architectural works held under the auspices of our Institute three days before the above-mentioned meeting, in asking His Worship the Mayor (Sir Frederick Smith) to open our exhibition, I ventured to suggest that we wanted something more than an art gallery, and proposed that an atheneum would provide a home for science as well as art. There are many institutions in our midst which have no domicile, amongst them

being the Cape Institute of Architects, the South African Society of Artists, the South African Drawing Club, the Sketching Club, the Photographic Society, the South African Association for the Advancement of Science, the Royal Society of South Africa, the Cape Society of Engineers, and the Royal Sanitary Institute. A museum, reference library, reading-rooms, lecture-hall, and laboratories could, and should, be combined with any art-gallery scheme that the public is asked to support. We, of course, do not wish to hamper the Society of Artists in any way; but I think we all feel that scientific and artistic culture can do so much to encourage pure art that they should not be pushed aside in the endeavour to secure a home, but rather be encouraged to co-operate.

HISTORY OF THE MOVEMENT.

The history of the movement for the acquisition of a Gallery of Fine Arts dates as far back as 1871, when the South African Fine Arts Association was formed in Cape-town for the purpose of founding an art gallery. Sir Henry Barkly, then Governor, was the first President, and Mr. John Fairbairn, senior, warden, secretary. In 1881 the Cape Colonial Government granted £100, which was later increased to £200, per annum until about 1905, when it was reduced to £80. In 1895 a Board of Trustees was appointed by Government, and they took over the property of the Association. The site of the old gallery in Queen Victoria-street was purchased by Government, and £6,000 was the agreed purchase price; but it has not been paid over. The Government, however, promised to build a new gallery, and in the meantime the new museum was built, and four rooms in it placed at the disposal of the Association. I understand the Union Government has now voted £500 per annum for the maintenance of the gallery and purchase of works of art.

The South African Drawing Club was founded by her Excellency Lady Smythe in or about 1887, and has flourished ever since. It is, of course, purely an amateur society, but has cultivated a public appreciation of art, and, without public or Government aid, has encouraged and produced artists, some of whom are well known here and in England. The present South African Society of Artists was started, I believe, in 1904, and is now engaged, as I have before remarked, in trying to revive the scheme of the trustees, of which, I believe, Sir Frederick Smith, Dr. Muir, and Mr. Macdonald were appointed by Government, and Judge Sefton and Mr. Sidney Cowper by the Fine Arts Association.

Doubtless there are good reasons for the comolent state of the trustees for sixteen years; but we should like to be let into the secret, and join hands with those who are at work to get something done.

REGISTRATION ACT.

We must all feel disappointed at the little progress made under our Registration Act, which has been quite unavoidable, for even had the three other provisions of the Act come to terms, it would have been impossible to get a private Bill introduced at this session of the Union Parliament, on account of the pressure of Government business. As matters stand now, it appears that the South African branch of the Society of Architects (London) is not satisfied with certain clauses in the draft Act, and, in deference to their opinions, your Council asked them definitely to submit the alterations that they desire. These reached us on January 30, and copies have been sent to all other interested bodies for their opinions. As two out of the three are centred in Johannesburg, we hope the advantages of personal discussion will produce a speedy settlement. The Natal Institute seems to be more in unison with our ideals; but I feel that it would be most unwise to "force the pace," and perhaps have a disinterested party to our committee. I hope to arrange another conference of practising architects when the draft Bill has been finally approved. There is over £100 in the bank here to the credit of Registration Act account.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

We are all awaiting with interest the announcement of the amalgamation of the Royal Institute and the Society of Architects (London). An honorary secretary to the Royal Institute in South Africa, I am glad to see that the Union and Rhodesium membership is steadily on the increase. The present roll shows 21 Fellows, 28 Associates, and 34 Licentiates. The Council are now arranging for a rebate of subscriptions due by members of allied bodies to the Institute. As far back as December, 1910, I advised the Institute to authorise the establishment of a branch in South Africa; but no notice has been taken of the suggestion.

THE BRITISH ENGINEERS' ASSOCIATION.

The British Engineers' Association is a new organisation formed for promoting and protecting the interests of British manufacturing engineers abroad, and especially in China. To that country its immediate attention will be exclusively devoted. After several preliminary meetings and discussions, twenty-two leading British engineering firms in September last decided to take the initiative in organising the association. These firms were: Messrs. W. H. Alderson, manufacturing engineers, Ltd.; Cable and Construction Co., Ltd.; T. Cooke and Sons, Ltd.; Dick, Kerr, and Co., Ltd.; George Fletcher and Co., Ltd.; Fraser and Chalmers, Ltd.; W. T. Glover and Co., Ltd.; Hadfield's Steel Foundry Co., Ltd.; Hayward-Tyler and Co., Ltd.; Heenan and Frende, Ltd.; Alfred Herbert, Ltd.; Holman Brothers, Ltd.; Marshall, Sons, and Co., Ltd.; Mather and Platt, Ltd.; Midland Railway Carriage and Wagon Co., Ltd.; Power Gas Corporation, Ltd.; Ransomes and Rapier, Ltd.; Stewart and Lloyd, Ltd.; John I. Thornycroft and Co., Ltd.; Vickers, Ltd.; Willans and Robinson, Ltd.; Edward Wood and Co., Ltd.

The above firms found the funds necessary for the preliminary expenses, including those of the incorporation of the association, and from among their directors was formed a powerful provisional committee to carry on the work of the association until its incorporation. In the meantime a number of other well-known firms were elected, bringing the total number of members of the association at the present day up to sixty-one. A complete list of the firms who joined before incorporation is printed at the end hereof, and the Association was formally incorporated on April 26, 1912, under a license from the Board of Trade, and is now carried on under the Companies Consolidation Act, 1908. Consequently the liability of its members is strictly limited.

THE OBJECTS, CONSTITUTION, AND FUNDS OF THE ASSOCIATION.

The objects for which the association is established are:—

- (1) To promote and protect the general interests of British manufacturing engineers.
- (2) To consider all questions connected with such interests.
- (3) To promote or oppose legislation and other measures affecting such interests.
- (4) To collect and circulate statistics and other information affecting the general interests of British engineers, and to diffuse amongst its members information on all matters affecting such interests.
- (5) To support the British Government, bankers, financiers, commercial, shipping, and railway companies, and any other organisations in promoting the general interests of British manufacturing engineers.
- (6) To watch and report upon the methods and progress of foreign competitors in Asiatic and other markets, and to suggest methods of counteracting foreign influences.
- (7) To encourage the predominance of British technical instructors in Asiatic and other schools.
- (8) To encourage technical colleges and schools in Great Britain to give facilities for Oriental and other students, and to establish, or aid in the establishment, of technical schools abroad for the furtherance of the objects of this association.
- (9) To aid by advice, co-operation, donations, or otherwise, any individual or concern who is able to promote the objects of this association.
- (10) To invite members of the association to give facilities for the introduction into their works for various periods of technical schools abroad for the furtherance of the objects of this association.

(11) To endeavour to make the English language the recognised medium for the transaction of all engineering business.

The articles of association provide that this association shall be governed by a council consisting of a president, five vice-presidents, and not less than fifteen or more than thirty ordinary members of council, elected annually from all the members of the association. The annual subscription for the time being has been fixed at ten guineas, which it is estimated will provide the funds necessary to enable the association to carry on its work efficiently.

Candidates for admission as members must be approved by the council and must be bona-fide British manufacturers of articles accessory to engineering plant other than those whose interests in foreign manufactures or otherwise might be antagonistic to the objects of the association, and must be individuals or incorporated bodies.

THE VALUE OF CHINA AS A MARKET.

For some years, in spite of the powerful reactionary influences which existed in China until the Revolution of last year, the progress in that country, and, consequently, the demand for engineering plant, has been growing with extreme rapidity. Without going into details, it is well to state the fact that, while Japan, usually cited as the most rapidly progressive country in the world, took thirty years to build 3,000 miles of railway, China has, during the last twelve years, built no less than 5,000 miles.

Naturally, Chinese imports all round have increased very rapidly. During 1910, which was the last complete year of China under the old régime, they stood at £62,300,000, a rise of more than £12,000,000 over the previous year, and £13,000,000 more than Japan's imports for the same period, though in Japan, too, 1910 was a record. Chinese engineering imports during 1910—that is to say, goods which would fall within the range of firms who are eligible for membership of this association—were about £8,000,000. Of this total the British share may be put approximately at rather over 40 per cent. China, however, is moving at the beginning of her career as an importer of machinery. With ten times the population of Japan, and perhaps a hundred times the natural resources of that country, and possessing a people in whom the business instinct is ingrained, there is no doubt that under the new régime, whatever form that may take, machinery requirements will naturally expand, for Chinese will be able for the first time to give free vent to their progressive tendencies. From this it is reasonable to suppose that China will become one of the greatest overseas markets for engineering plant.

A COMPARISON BETWEEN CHINA AND JAPAN.

China to-day, so far as her knowledge of engineering is concerned, is very much in the condition of Japan some thirty-five years ago; but the position of the British engineer in China is by no means as strong as it was in Japan at that period. In dealing with Japan in the early days, British engineers had an immense advantage over their competitors. This was due to two causes: (1) Japan selected and paid for her own advisers and instructors, and financed her own industrial enterprises. (2) She selected, as far as engineering was concerned, British advisers and instructors in nearly every case. Thus the early Japanese engineers were not only thoroughly imbued with a predilection for British plant, but their engineering education was all absorbed on British lines. The intimacy between the Japanese student and the British professor not only accentuated that leaning towards British products in the early days, but its influence has continued even to this day, though the Japanese now consider that they are no longer in need of European aid. In China matters are on quite a different footing. There are some eight nationalities vying with each other in lending money to China or industrial enterprises, and clamouring for industrial concessions. Out of these countries Great Britain is the only one who does not couple with her financial

CURRENTE CALAMO.

The debate at the meeting of the London County Council on Tuesday, on the alleged delay in the progress with the work of the Council's new building, was marked by criticism aimed apparently at the administrative capacity of the party in power. It is a pity statements with such little foundation were made. It will be remembered that about July, 1906, the County Council ordered a competition for their new hall, and we believe the assessors reported their decision somewhere about February, 1908, the successful architect being Mr. Ralph Knott, a young man whose experience in such large works must necessarily have been limited. The Council, therefore, took the wise precaution that Mr. W. E. Riley, their official architect, should have discretionary powers relating to matters of internal economy, building construction, and stability, this being a structure apparently exempted from the Building Acts. In April, 1908, the Council prepared a revised schedule of accommodation, and instructed their committee to proceed with the preparations for constructing a building to provide for it. In April, 1909, amended designs for the elevation were considered by the Council and approved, and it had been understood previously to this that the work would not be completed until 1918.

In all similar large buildings which have preceded the County Hall, many modifications have from time to time had to be made on the original competition plans, and this is only the ordinary course of events in connection with such large undertakings. Indeed, we have some recollection of the assessors (Mr. Norman Shaw, Sir Aston Webb, with Mr. W. E. Riley) making suggestions for improvements in the elevation of the building in the early part of last year. The raft foundation and retaining walls were carried out by the Council's own architect, and we have watched the progress of this herculean task with considerable interest. That certainly has been done without loss of time. From inquiries we have made we find that the working drawings for the substructure have just been completed, and those for the superstructure are to be done some time during the present year, and the whole of the building, it is anticipated, will be completed in 1916. This will give a period of less than four years for the construction of a building of great magnitude, which does not appear to us at all excessive, judged by the time standard of monumental buildings which have been erected in recent years, such as the South Kensington Museum, the War Office, the Local Government Board, and the Admiralty buildings.

On Tuesday the London County Council by a large majority declined to permit the South Eastern Railway to fix a 60ft advertisement on one of its railway bridges in Southwark, on the ground that these huge advertisements disfigured the streets. This is the first time the Council has taken action, so one hopes no more of the railway bridges which span the London streets will be thus transformed into eyesores. Railway street bridges are unsightly enough without advertisements. Ludgate Hill, where the vista of St. Paul's is spoiled, is a case in point. Tuesday's decision is late, but it will be

hailed with delight by those who value the dignity of London more than the glaring placards of the beer-lords and the soap-makers.

We print elsewhere to day part of a recent address of the Hon. John B. Rose, of New York, to the Chicago brickmakers, which some of our own brickmakers would do well to ponder. The British brickmaker and his brother the stone-merchant have here surrendered—not exactly at discretion—to their rivals, who know what publicity means, and it is time they awoke to the fact. We ourselves are just now showing what can be done with brick in a practiced fashion which brickmakers generally ought to have seconded for all they were worth; but they have not, and are apparently contented to let the public forget their existence. It is time a "Back to Brick" campaign was started here, to teach people to recognise the claims of clay products to superiority in so many instances as materials of construction.

The last report of the London County Council reveals that some of the motor-bus people have gone to the Board of Trade suggesting that street congestion is really caused by the trams, and proposing that 50 or 50 per cent. of the trams should be taken off the streets during the middle of the day, from ten till four o'clock. The Board of Trade has sent the motor-manifesto to the Council for "observations," and the Council's Highways Committee, while admitting that the trams are not crowded during the middle hours of the day, quotes figures to prove that motor-buses proportionately are less full. As to congestion, it is shown that without trams there would have to be thousands of trams, when the congestion would necessarily be worse. The Council, moreover, points out that the trams benefit the ratepayers. They pay £118,000 a year towards road maintenance, and they also pay £104,000 a year in rates. They have paid £453,000 in road improvements, and are to pay £350,000 more. The motor-buses do none of these things. They tear the roads to pieces and help the crawling motor-cabs to block the streets. The latter are the worst offenders; Londoners have not forgotten how free of obstruction the streets were during the recent cab strike. Moreover, the trams carry workmen at cheap fares, while the motor-buses do not.

Shall we have a competition before very long for the new Irish Parliament buildings? And will the successful architect be a member of either of the Houses? The architect of the old Parliament House in College Green, Dublin, now the Bank of Ireland, Sir Edward Lovett Pearce, whose plan was approved and carried out, was a captain in a cavalry regiment, and member for Rathmah in the County of Meath.

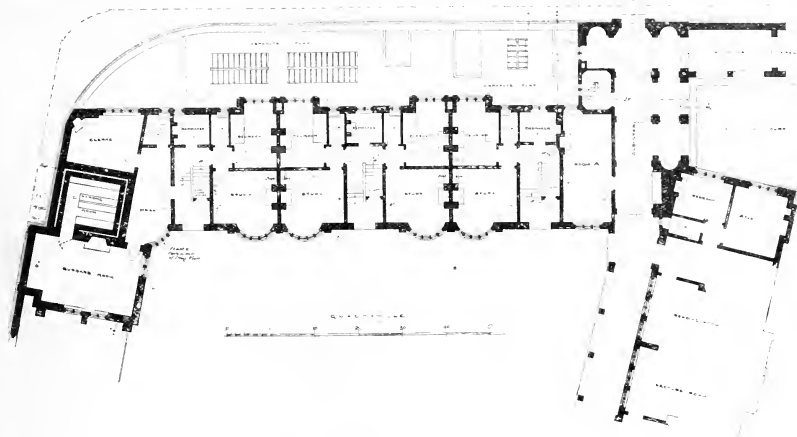
Mr. E. G. Pretynan, the President of the Land Union, announces another important decision given on May 9 by Mr. J. M. Clark, the Referee in the Newcastle Test Case, where Increment Duty was claimed upon the profit made by Mr. Lumsden, a builder, upon the sale of a shop which he had erected upon land he was developing at Newcastle. This case is being fought on Mr. Lumsden's behalf by the Land Union, and the Referee has decided that no duty is payable, and has given costs against the Commissioners, who, we understand, propose to carry the case to

appeal. Mr. Masterman has told us our remedy is in the courts of law; but the officials of the Valuation Department, whose duty it is to administer this impossible Act, and who, through no fault of their own, are placed in the unfortunate position of losing every case they take into court, must be tiring of the litigation the larrago of absurdities embodied in Part I of the Finance Act, 1909, entails.

Why is the Bishop of Lincoln down on town clerks? There can be no professional grudge, because his great predecessor St. Paul was eminently indebted to the peace-making capabilities of one at Ephesus, if the story in Acts xiv is true. Anyhow, according to the London correspondent of the *Manchester Guardian*, preaching in London this week the Bishop of Lincoln said: "Years ago I knew two towns with separate municipal government, but for all practical purposes the same. They had each organised for itself a splendid system of electric trams. Each was jealous and independent of the other. They would not combine their systems or run over each other's lines. To the population this jealousy was an hourly nuisance. Travellers had to dismount in all weathers and walk a distance to a tram in the other system. Conferences were arranged, but in vain. The town clerks could not fix up an equitable arrangement. At last one of the mayors, who happened to be a personal friend of the other mayor, invited him to lunch. He said: 'Bring your tramway manager with you, but do not bring your town clerk, nor shall I bring mine.' You see, the bishop went on, 'the town clerk is a standing army. His business is with fighting.' In two short interviews the matter was arranged, and the two town clerks were told to draw up in legal form the arrangement come to, and to not put up any fight against it, and that arrangement to my knowledge has worked happily ever since." "I wonder," adds the *Manchester Guardian* correspondent, "how many of my *Manchester* readers will be able to guess the two towns."

In an interview with "P. W. W." in the *Daily News* last Monday, Mr. Lloyd George struck bottom, for once, in really practical fashion. "We must," he said, "clear out the slum—whether in city or village or mining urban district. We cannot tolerate the slum any longer. And if, from any source, capital is found for housing, it will mean just the demand for labour which will best be calculated to level up wages in the village. Once this is decided, the figure for wages will not fall again." We are not prepared to guarantee all Mr. Lloyd George's deductions; but we have said more than once lately that nothing could more surely help our own great group of industries, the sea and greatest in the kingdom—and more immediately benefit every other class—workman, shipowner, merchant, and craftsman—than the prompt and vigorous encouragement of the provision of better houses, and the improvement of our cities and villages. The by-product brings value wherever he leaves his mark. There are some industries of greater pretence that only dissipate it.

The ownership and operation by the State of the railway system of this country has now reached the stage in which it is no longer regarded as chimerical, and the time is ripe for active work by a society devoted to the



SIDNEY SUSSEX COLLEGE, CAMBRIDGE.

Cotswolds. The drawing is by Mr. A. N. Prentice, F.R.I.B.A., the architect, and it is included in this year's Academy Exhibition.

[We published a set of measured drawings, comprising plans, elevations, and details of the old Manor House, as contributed to the BUILDING NEWS by Mr. William T. Benslyn, and at the same time (September 15, 1911) a view of the building was given from the pen of Mr. W. J. Roberts, M.A., A.R.I.B.A., who likewise gave a detail of the staircase bay.]

NEW WING, SIDNEY SUSSEX COLLEGE, CAMBRIDGE.

This building completes the third side of a quadrangle facing Sidney-street, the other two sides of which are formed by existing buildings. In general lines the design follows the north-eastern side of the quadrangle, designed by the late John L. Pearson, R.A., and carried out in 1890. Accommodation for the bursar and his staff and four suites for Fellows are provided, in addition to the rooms for Undergraduates, the basement being occupied by baths and lavatories for the use

of the whole college. The materials are red brick, with stone dressings and tile roof, and all floors are of fire-resisting construction. The drawing here reproduced gives a view from Jesus-lane, and is exhibited at the Royal Academy. The architect is Mr. Frank L. Pearson, of 12, Mansfield-street, London, W.

CHURCH HALL, NEW BRIGHTON.

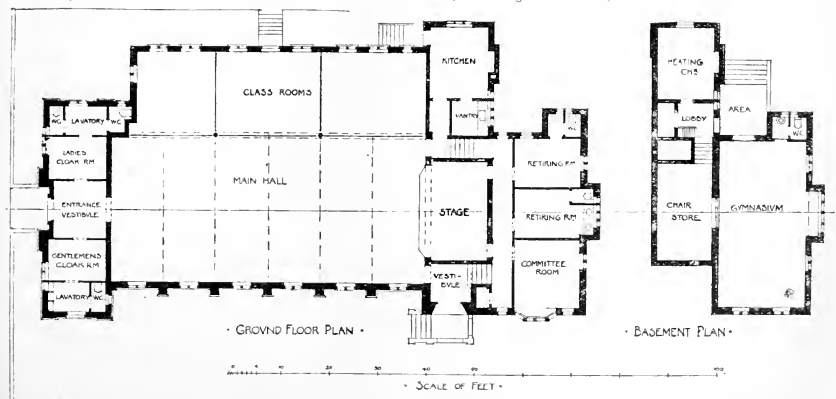
This building, which is now in course of construction, is situated at New Brighton, immediately opposite St. James's Church, with which it is connected. It is being built out of funds left by the late Mr. Frederic North for this purpose. The walls are faced with 2in. mixed red bricks from Basingstoke, and similar moulded brick dressings, relieved with stone gable copings, and the stonework around the west entrance and oriel window on the south side. The roof is covered with grey slates from North Lancashire. The window jambs and mullions are of stone, with moulded brick jambs, heads, and sills around them on the outside, and are glazed

with leaded lights and iron casements. Internally, the hall is arranged with three classrooms on the north side, which are divided from it and from each other with sliding glazed screens, so that the whole may be used as one hall when desired. Underneath the retiring-rooms behind the stage, a gymnasium for boys is arranged. The builders are Messrs. Jones and Sons, of Liverpool, and the architect is Mr. E. Guy Dawber, F.R.I.B.A., of London. The drawing is exhibited at the Royal Academy.

AN ARTIST'S COTTAGE. WITH A STUDIO.

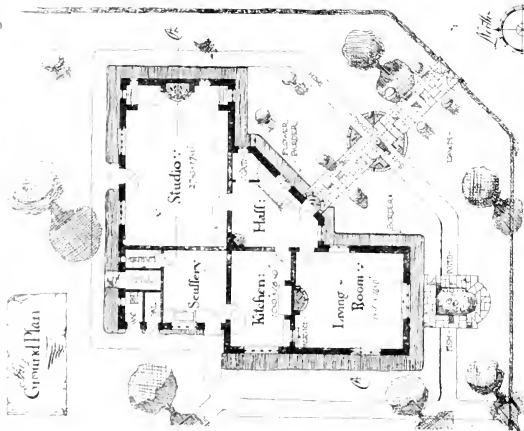
(For the Assessor's award in this BUILDING NEWS Designing Club competition, see pages 683-5.)

The foundation-stones of a new Baptist chapel for the Pisgah congregation at Kenfig Hill have been formally laid. The cost is estimated at £3,500. The architects are Messrs. Jones and Evans, of Port Talbot, and the builder is Mr. Thomas, of Port Talbot.

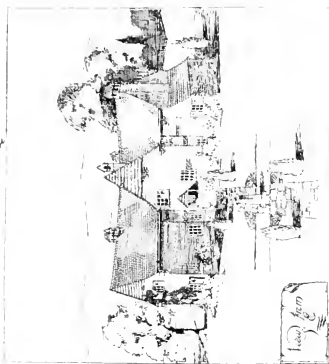


CHURCH HALL, NEW BRIGHTON.

By
Ground Plan



Design for
An Artist's Cottage
(By "Binghally")



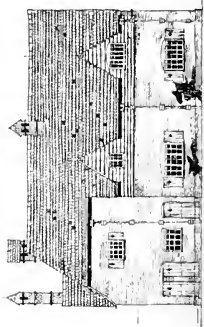
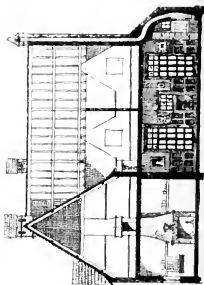
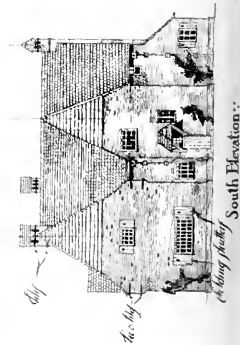
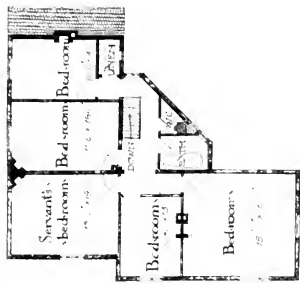
PLACED THIRD

1st Floor Plan

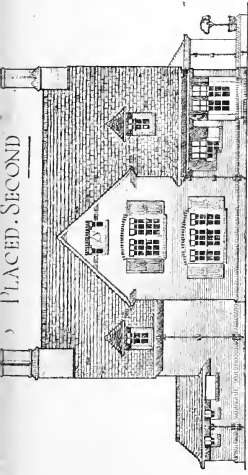
Roofs of narrow front-board, timber, the roof covered with old clay & the gables weather-boarded, eaves-work with oak log painted white. Windows of painted iron, fitted with folding copper shutters.

BIDC. 7th 1905-12.

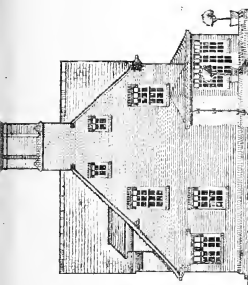
Ch. Binghally



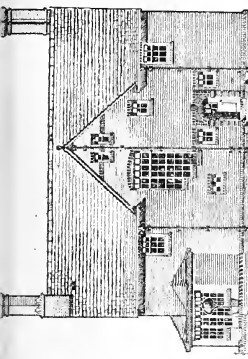
PLACED, SECOND



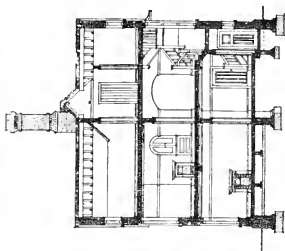
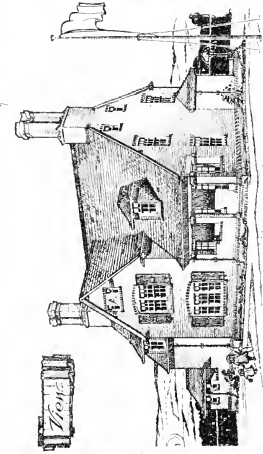
South-East Elevation



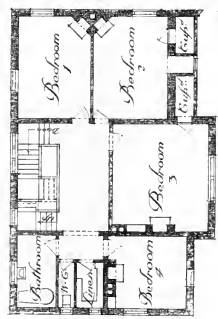
North-East Elevation



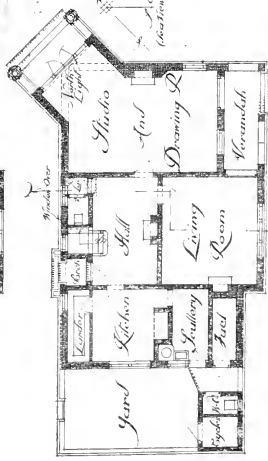
North-West Elevation



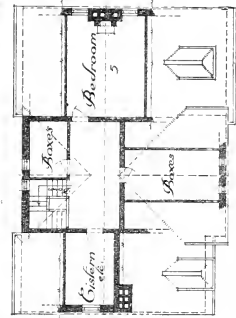
Section A-A



First Floor Plan



Ground Floor Plan



Attic and Roof Plans

May 3 B. V. D. '03. 1012.
AN ARTIST'S COTTAGE,
Incorporated as
an artist's studio, a holiday home.

DESIGN BY
FIVE TOWNS



Building Intelligence.

LIVERPOOL.—The new Harrison Hughes Testing Laboratories at the University of Liverpool will be formally opened by Lord Liverpool to-morrow Saturday. They have been erected at a cost, including equipment, of about £10,000, and form an L-shaped building four stories high, projecting on the grounds of the University. The building is employed, and there is through communication on between the two on every floor, glass exterior walls are of grey brick with red stone dressings, and the roofs are covered with tiles. The foundations have been carried down to the rock, which lies at an average depth of 40 ft. below the basement floor level. For this purpose, concrete piers were employed, the main walls being carried on continuous reinforced concrete beams running along their tops. On part of the roof there is a tank holding 10,000 gallons of water for experimental purposes, while another flat portion of the roof will be utilised for experiments on aerial propulsion and windmill construction, writes Messrs. Lamb and Sons for the foundations and Messrs. Joshua Henshaw and Sons for the superstructure, while Messrs. Briggs, Wolstenholme, and Thornley acted as the architects.

LONDON.—The first portion of the London and South-Western Bank Head Office, consisting of 168, 169, and 170, Fenchurch-street, 68, 69, and 70, Gracechurch-street, and Ingram-court, was built in 1889. In 1904, 171, 172, and 173, Fenchurch-street, was added to the bank property and rebuilt, and in 1909 the directors, having acquired Nos. 66, 67, and 71, Gracechurch-street, the whole of the site at the junction of Fenchurch-street, Gracechurch-street, and Lombard-street, comprising an area of 11,000 ft. super, and with a total frontage of 125 ft. towards Fenchurch-street, Gracechurch-street, and Lombard-street, towards Ingram-court, became available for banking purposes. The premises have now been remodelled and rebuilt on this extensive site. The front elevation is in Portland stone, with a polished granite base to the height of the ground floor window-sills. As regards the interior, the walls of the banking hall are lined with marble, with a few panelled doors 8 ft. high. The main staircase is of marble throughout, the corridors being lined with marble and the floors laid with marble mosaic. The whole of the ground floor is occupied by the banking hall, the main entrance to same being at the corner opposite Lombard-street, with a subsidiary entrance in Gracechurch-street, that at Lombard-street forming the entrance to the upper floors of the building. There is also a separate entrance to the foreign branch in Ingram-court. The basement and sub-basement contain strong rooms, storerooms, cloakrooms, and lavatories, heating apparatus, and also a pump-room in connection with the artesian well which has been sunk upon the site. The first floor contains the general managers' rooms, conference rooms, waiting rooms, accountants' branch loans and inspection, board room, and ante-room, secretary's department, and a large number of private offices. The second floor contains solicitors', trustees', and inspectors' departments, and this floor, together with the third floor, contains a large number of tenants' offices, with ample lavatory accommodation. The fourth floor contains a large dining room, smoking room, kitchen, scullery, and offices, housekeeper's apartments, and tenants' offices. The whole of the rebuilding has been carried out by Howell & J. Williams and Co. from the designs and under the superintendence of Mr. Edward Palmer, Holmston, and Cambridge. Mr. Peacock has acted as clerk of works. The bank will be officially opened by the Lord Mayor on May 18 (to-morrow). The lifts are by Messrs. R. Waygood and Co. Ltd., and one of the safest, strong room, etc., by Messrs. Clubb and Co. Ltd.

BOCHDALE.—The cornerstone of the new school which is being added to the Church of the Good Shepherd in Entwistle-road, Bochdale, was laid the other day. This

addition will complete the fabric, of which the nave was built in 1904-5. Messrs. Ashworth and Woodlenden are the contractors for the church, Messrs. Nichol and Son being the sub-contractors for stonework. Mr. George Barker, of Manchester and London, is the architect for this addition, as for the nave. The church will be 31 ft. long by 22 ft. wide, and is to be in keeping with the general structure. It will have a three-light east window, the gift of Sir Clement Ridsdale, the subject being the Good Shepherd. The chancel and vestries will cost about £1,500, exclusive of furnishing.

PROFESSIONAL AND TRADE SOCIETIES.

AUCTIONEERS' INSTITUTE.—The annual report of the Auctioneers' and Estate Agents' Institute of the United Kingdom states that 181 new members have been elected, and that 49 associates were transferred to the grade of "Fellow," and 41 students to that of "Associate." The number of members is 2,250. The income for the year was £3,619 13s. 4d., and the expenditure £3,487 0s. 9d., leaving a net balance of £1,132 12s. 7d., which, added to the balance brought forward on January 1, 1911, shows a balance to the credit of income and expenditure of £11,954 13s. The investments have been increased by £1,250. The sum standing to the credit of the Benevolent Fund is £3,073 12s. 8d., being an increase of £131 0s. 10d. At the annual meeting of the institute held on Friday, Mr. Arthur William Brackett was elected to succeed Mr. John Marks as president. Mr. Brackett was born in 1858, being the son of Mr. William Brackett, of Tumbidge Wells. After spending some years in the City with the late Mr. Edward Millard, F.S.I., Mr. Brackett entered into partnership with his father at Tumbidge Wells in 1885, and the firm of William Brackett and Sons. He was elected a Fellow of the Surveyors' Institution in 1886, and of the Auctioneers' Institute in 1894, becoming the chairman of the Kent, Surrey, and Sussex branch of the latter body in 1899. He was president of the Estate Agents' Institute in 1906-7, and served as Master of the Blacksmiths' Company in 1909-10.

A PALACE IN PARTHA.—At the annual meeting of the Society for the Promotion of Roman Studies, held on Tuesday at Burlington House, Professor R. Flaverfield, the president, in the chair, Miss Gertrude Lowthion Bell read a paper on "The Parthian Palace at Hatra." She said that the plan of the Palace was purely Oriental; the structure and decoration showed Hellenistic influence. The buildings might probably be dated between the first century B.C. and the second A.D. Hatra was taken by the Sassanians in 226, and never recovered. The walled city is approximately round, a plan typical of Hittite fortified towns in Northern Mesopotamia. Behind great audience halls there was a building which had on insufficient evidence been called a temple. Its decoration showed Classical influence. The modifications introduced by Oriental builders into Classical temple plans had yet to be studied. When that important subject was approached the Parthian temple plans would furnish invaluable material.

BUILDERS' AND CONTRACTORS' UNION.—On May 9 a general meeting took place at the Builders' and Contractors' Union, Limited, at the registered offices, 45 and 46, Lower Marsh. The appointment of Mr. Josephson as secretary was confirmed by the general body. Mr. Atkinson, Mr. Elsenham, Mr. Taylor, Mr. Ockendon, and Mr. Small have been elected as committee men. Mr. G. Atkinson, clerk of the 5, Gerard-street, W., has been elected as chairman. Mr. Josephson addressed the meeting, giving a brief history of the union. Having been a worker and a small master for twenty years, he said: "Last year I thought of retiring from business altogether, but I saw an opportunity to secure for at least five

years work for from 50 to 60 hands, and I made up my mind to form this union on co-partnership basis. It has taken me six months to work out the rules to the satisfaction of the friendly societies' authorities, and to the satisfaction of the proposed members. I went from solicitor to solicitor and from solicitor to counsel, and I found that in order to work out the rules as they stand now, fees of about £150 had to be paid, and I felt, having to deal with poor workmen, it would be a great hardship on young society to run up such a heavy bill. I therefore took the task upon myself, and you see the result. It is admitted by the leaders of the Labour question that the rules of this union are perfect so far as equity is concerned. As an example, I read to you the report of the BUILDING NEWS of November last year: 'Where the actual workers can be members and share the profits, you can avoid the difficulties about strike and compensation; they will at least teach us all something, and that should, at any rate, attract the attention of workers willing to help in the solution of the problems too often ignored by isolated labour and capital.' Among other things the speaker pointed out the advantages of the union were:—No rich man can buy shares in the union; no member can belong to the union unless he subscribes for 50 shares; no workman, no matter how poor, is to be debarred from becoming a member, because every man can well afford to pay sixpence out of a pound earned towards the 50 shares which he is obliged to subscribe. The minutes of the first meeting were then read. Among others, the founders have agreed to render their services (including their salaries) without charge, nothing being done so until the union will have work in hand and actually start business; therefore the union is not burdened with any preliminary expenses, as is generally the case with promoters of companies. It was pointed out by the speaker that a start has been given to them, a contract for £2,600 has been secured for them, which will give at least 40 men employment for from three to four months. A vote of thanks was given to the speaker and the chairman, and the meeting terminated.

LONDON MASTER BUILDERS' ASSOCIATION.—The council of the London Master Builders' Association met on Thursday, May 9. The chair was occupied by the president (Mr. James S. Holliday). The special committee, which was appointed to confer with the representatives of the Carpenters and Joiners re Working Rule Agreement, submitted its report of the conference held on the 1st inst., which was unanimously adopted. The operation of the National Insurance Act (1911) was considered, and the council decided to formulate instructions to be sent to the members of this association for their guidance in carrying out the requirements of the Act. Various correspondence was read relating to trade matters, including the Railways Bill. The following were elected members of the association:—I, ordinary members, Messrs. H. J. Carter, 1, London Road and Grays, Essex; J. 2, Messrs. Bovis, Ltd., Upper Berkeley-street, W.; 3, Associate member, Mr. J. B. Smith, 117, Hampstead-road, N.W.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—The Council have elected the following candidates as Licentiates in accordance with the provisions of By-law 12:—Matthew Adam (Glasgow), Rodney Howard Alsop (Melbourne), Arthur Godwyn Andrew (Cheadle, Hulme), Beaumont Ellis Atkinson, Jun., Lawrence Ashton Box (Bombay, India), Arthur George Bradshaw (Lancaster), Thomas A. Brandle (Singapore), Thomas Broadbent, Senior (Bretton), Reginald Butler Brerley (Bedford), Cuthbert John Brodick (New Zealand), F. Anstead Browne (Ipswich), Charles Ogilvie Campbell (Chester), William Edward Careless (Montreal), Benjamin Chaikin, Ernest Austin Collif (Sledmere), George Collins (Oldham), Wilfrid Joseph Cummins (Manchester), John Eagle (Manchester), James Morris (Iber), Gladwell, James Gorman (Malay Peninsula),

Douglas Hall (Huddersfield), John Henry Harvey (Melbourne), Arthur Edward Henderson, Gilbert Higginbottom (Manchester), James Jennings (Aberdeen), Gerald Edgar Jones (Auckland), Charles Johnston (N.Z.), Charles Johnston (Wendbury), Arthur Vernon Kinsborough, John Forsyth McIlwraith (Cambridge), Charles James McNeil (Glasgow), Herbert Alton Magoon (Edmonton, Alberta), Frank M. Miles, Stanley Charles Miles (Bournemouth), Cecil Herbert Morgan (Madras), John Myers, Edward Oshoan (Pieternaritzburg), Arthur Raymond Pratt (Percy (Stoke-on-Trent), Douglas Warren Pollock, Arthur Quarterman, J. T. G. Roberts (Wellington, N.Z.), Alan Keith Robertson (Edinburgh), Alexander Robertson (Kalgoorlie), Hubert C. Sands, Herbert Reginald Saxty, Frederick Robert Edwin Sladdin (Cape Town), J. Roxburgh Smith (Montreal), Herbert Athill Stallwood (Strait Settlements), Edward Stockwell (Basingstoke), Leslie Tanner (Brighton), Francis Robert Taylor, Alexander Caldwell Thorpe (Oxford), John Egerton Thorpe (Oxford), Alexander Cameron Todd (Montreal), Richard Arthur Waite (Bradford), Israel Walker, Noel Huxley Waller (Gloucester), Robert Elliot Walton, Frank Ward (Edmonton, Alberta), Leslie Elliot Williamson, Francis Arnold Winter (Sheffield), William Armour Arbuckle (Glasgow), Larmont Douglas Pennington (Ayrshire), Francis George Glyn Robertson (Glasgow), William John Wright (Glasgow).

SOCIETY OF ARCHITECTS.—The seventh ordinary meeting of the Society of Architects for the session 1911-12 was held at 28, Bedford-square, W.C., on Thursday, May 9, 1912, at 8 p.m. Mr. Percy B. Tibbels, F.R.I.B.A., vice-president, having taken the chair, it was resolved that the minutes of the previous meeting, having been published in the Journal, be taken as read. The minutes were then confirmed and signed. Twenty-one nominations for membership and four for studentship were announced. The ballot was then taken, and the following candidates were declared to be duly elected:—As Members: Robert Herbert Blackburn, 8, Fairbank-road, Manningham, Bradford; Herbert Volland Boreham, 73 and 75, Emsbury-pavement, E.C.; Benjamin Chaikin, 47, White Lion-street, Norton Folgate, N.E.; David Charles Davies, 112, High-street, Northfleet, Kent; William Wrigley Diggle, 10, Victoria Mansions, West End-lane, West Hampstead, N.W.; Thomas Dowson, "South Cliffe," Eastrow, Sandstead, near Whitby; Burkett John Emery, Council Chambers, 109, Colmore-row, Birmingham; Edward Hale, Guildhall Buildings, Birmingham; John Robert Hall, 10, Paradise-square, Sheffield; Alfred Charles Harbottle, County Chambers, Exeter; Edward Joseph Harbottle, County Chambers, Exeter; Henry Aubrey Lane, 6, Park-avenue, Mansfield, Notts; Harold Victor Milles-Diamond, "The Mount," Chandlers Ford, Hants; Joseph Edward Stanley Pritchard, Bank Buildings, Kidderminster, and The Knoll, Comberton; Norman Richley, 12, Mowbray-street, Durham; William Fred Sargisson, Ancón, Peru, South America; William Southall, Chapelgate, Retford, Notts; George Angus Sutcland, 10, Bridge-street, Wick; Harold Gibson Walker, Golden Lion Bank Chambers, Whitby; James Edwin Webb, The Guildhall, Nottingham. As Students: John Valentine Bowring, "Woodlands," Eastwood, Essex; Romilly Bernard Craze, 905, Fulham-road, S.W.; Fredrick Fisk Hayward, P.O. Box 492, Johannesburg; Alfred John Johnson, 122, Hindmans-road, Eastleigh, S.E.; Francis Ralph Priest, 29, West Side, Clapham Common, S.W.; Thomas Rayson, "Hughenden," Bickerton-road, Highfield, Oxford. Professor W. A. Scott, A.R.I.B.A., A.R.H.A. (Member), then gave a lecture on "Grecian Architecture," illustrating his remarks by means of lantern slides and drawings.

Correspondence.

THE FINANCIAL POSITION OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—I think most members will endorse the remarks of the auditors, especially the last three lines, as reported by you on p. 659 last week.

I confess I know of no society—not even the "philanthropic" ones—where out of a total of subscriptions of £8,500 odd, more than half goes in rent and salaries. Certainly £2,725 seems a big sum for official salaries—nearly 30 per cent. on the subscriptions!

Is it worth while, moreover, continuing the loss of nearly a thousand a year on the Journal and Calendar?

I see the number of Fellows still slowly diminishes. They bring in most grist to the mill, and if they gradually disappear something will have to be done.

The one thing that seems to pay at the Institute is the Examinations. The receipts from those examinations are £1,459 8s., while the expenses were only £331 9s. 10d. Might not the fees be lowered safely?—I am, etc.,

A WELL WISHER.

THE DECADENCE OF ENGLISH ARCHITECTURE.

SIR,—I am completely in agreement with the views expressed in Mr. Maurice Adams's letter on this subject in your issue of last week. The Council of the Architectural Association has for many years been primarily concerned with educational matters, and is at the present moment maturing a scheme of three years' course, instead of the two years' course, in the Day School. Students who take the third year will concern themselves principally with advanced design of a monumental nature, and will then be encouraged to go on to the Academy schools for a continuation of the work designed by the Association. This has been decided upon to supplement the policy of the Architectural Association schools in the future, and the Council of the Royal Academy have extended practical encouragement to the Architectural Association students who are qualified to go to the Royal Academy. The comprehensiveness and breadth of outlook in artistic matters for which the Academy stands, and the advantage to architectural students of associating with painters and sculptors, has been fully realised. The prestige of the Royal Academy and the glories of its gold medal will still remain the Mecca of the ambitious student, and it concerns us to give the necessary preparatory education in a thorough manner.

The BUILDING NEWS refers to a new departure, closely allied to the wellbeing of the school—viz. the exhibition of lin. detail drawings and photographs of executed works which closed on Saturday last. The students are enabled to see contemporary work by our leading men in a form which permits of intelligent study and observation. An exhibition committee has been formed, and it is hoped to hold a succession of really educational loan collections without foundation. The museum is left to us with certain conditions attaching to it, and our intentions are not to override these conditions, but rather to develop and add to the collections under our care from time to time, so that our students may have within their doors a comprehensive

collection of casts, showing the architectural development of this country and others.

There is no doubt that the majority of the casts would be more suitably housed in reserve collections, because many of them are useless to the student in their present crowded state; but that cannot come about until the building can be adapted for that purpose.

Mr. Maurice Adams is an old friend of architectural education, and his views command respect, and it is with great pleasure that I am able to state a policy so completely in accord with his own suggestions. It is not to the Beaux Arts that we need look, but to ourselves. The sympathetic support of the whole profession, and the energy of the students are the only means whereby to fight "decadence" in any form.

We are bound to fall short of the ideal state in our education until we receive the Government aid upon which architecture has such just claims; but there are things we can do among ourselves that come first, and prepare the way.—I am, yours faithfully,

H. AUSTIN HALL, Hon. Sec.

The Architectural Association,
18, Tufton-street, Westminster.

CLARENDON HOUSE, PICCADILLY.

SIR,—Could Mr. Alfred Gotch, Professor Reginald Blomfield, or some other expert authority on Old English architecture, tell us if any engraving or drawing exists of the great house which the great Lord Chancellor Hyde built on property facing Piccadilly, subsequently pulled down, when "Bond-street and Albemarle-street" encroached on the beauty of its site? Pratt was its architect, and the mansion was erected during the Plague year, while Parliament sat at Oxford. It cost £50,000, or three times the sum of its designer's estimate. Evelyn describes it as "a costly and only sumptuous palace," and says it was sold during Clarendon's exile to the young Duke of Albemarle for £25,000, and that he sold it to the highest bidders, some "rich bankers and mechanics," for £35,000, adding, "they design a new town, as it were, and a most magnificent piazza. . . . See the vicissitudes of earthly things." Pepys writes in 1666, "I have never seen a nobler pile. . . . It is, without hyperbole, the best contrived, the most useful, graceful, and magnificent house in England," and after wishing its noble builder long life to enjoy such a noble house, he says, "and when he shall be passed to that upper building not made with hands, may his posterity inherit his goodness, this palace . . . to consummate their felicity." As for Hyde himself, he left on record, "There was nothing of which he was so ashamed as he was of the vast expense he had made in the building of his house." He previously lived at 10, Berkeley House in St. James's, on the site of the present Bridge-water House. It was afterwards known as Cleveland House, as Lady Castlemaine adopted it in 1668, when she became Duchess of Cleveland. Clarendon House must have been an interesting example of architecture, and if an illustration could be given, I should be glad.—I am, etc.,

MATRICE B. ADAMS.

WHY TRADE RETURNS ARE GOOD.

SIR,—All concerned with trade are asking themselves how it is the trade of this country is going up by leaps and bounds, according to the Board of Trade Returns. Can you show you see larger returns published, and people are mystified, especially those in the building trade, which trade has been declining ever since the Boer War commenced.

Recently we have been fixing up an agency for Canada for Pudlo, which makes cement waterproof, and of which I am the sole maker. I find that there is a preference given to English-made goods—for instance, in Canada there is a duty of 25 per cent. on English-made goods, whilst on foreign-made goods the duty is 35 per cent. I find that the Germans and many other foreigners send produce to England and then re-ship it to

The Roman Catholic church, Kilsrea, is about to be restored at a cost of £7,000. Plans have been prepared by Mr. J. V. Brennan, architect, North-street, Belfast.

but they said that if they put the three houses together, and pulled them down, they would get a site of sufficient size or depth to erect a warehouse upon it.—The Master of the Rolls: Are all the houses subject to one title? Mr. Jenkins: Yes, not.—Mr. Peterson thought they were.—Mr. Jenkins would admit that at one time there was a common owner. No. 63a, he said, was a warehouse. No. 62, although rather deeper than No. 63, was a good deal narrower than No. 63. It had a little window which was below the level of the pavement. That was one of the windows the defendants were alleged to have blocked, as also a window on the ground floor and two on the first floor. No. 63 had three windows in the basement, the tops of which slightly protruded above the pavement level, and three windows on the ground floor, and three windows on the first floor, the light to which the defendants were said to have interfered with. The depth of No. 63 was approximately from 18ft. to 19ft., and the depth of 62 was something over 20ft. The total surface area of the two houses was about 1,000sq.ft. The total surface area of No. 63a was about 1,050sq.ft., and in the building there were no windows looking towards the defendants. Defendants admitted that so far as the dominant tenement was concerned, there had been no breach of the right of light, but that for that; but the point was whether the plaintiff was entitled, as against the tortfeasors, to have the damages assessed upon the footing that what they had done made the whole site less valuable than it would have been if they had done other works, was the plaintiff entitled to get £200 for the loss he had suffered? The learned Judge had said he was.—In reply to the Master of the Rolls, Mr. Peterson contended that No. 63a was let on a monthly tenancy.—The Master of the Rolls said that if the plaintiff was minded to enter into an arrangement to pull down his three premises, and for the erection of one building, and that when the construction of the building would interfere with that, he could not see why that fact should not be taken into consideration.—Mr. Jenkins contended that it ought not. So far as his research went, he could not find a similar case made for a plaintiff before Mr. Justice Neville had measured the damages by saying that a man would probably pay £200 more for the three sites combined than he would pay for them separately. He submitted that the same rule should govern an action for damages, and that fact was not altered because the action happened to be tried in the Chancery Division. He contended that the damages paid in the present case must be confined to the injury to the dominant tenement. It was clear that No. 63a was not the dominant tenement, or part of it. He submitted that damage arrived at in that way could not be charged against the defendants.—Mr. Vernon followed in the same line, contending that the Judge had assessed the damages on the wrong basis. All that the plaintiff had a right to was to have the damages assessed for the damage to the light coming to his two dwelling-houses. Lord Justice Buckley dissenting, contended that the right to look at the premises as a whole as a marketable commodity.—The Master of the Rolls said that they had not to take into consideration the quantum of damages claim put forward by a plaintiff. Mr. Vernon contended that the Judge had no right to take into consideration the site of 63a, which was not the site of the dominant tenement, at all. He contended that the only right which the King had was to have the light passing through the apertures of the dominant tenement actually existing.—Counsel for the respondent were not called upon.—The Master of the Rolls, in the course of his judgment, said it was apparent that the King had a property which must be taken down, and the site used for another building. It was also apparent that the neighbourhood was one which was being now covered by large buildings in the nature of warehouses, and that the fact that they had to consider was the measure of damage, and what they were entitled to take into consideration in assessing the damages for the wrong which it was admitted the plaintiff had suffered. The fact that the plaintiff did not, by reason of delay in commencing proceedings, been able to obtain an injunction. It was clear that if he had commenced the proceedings in time, he could have obtained an injunction, which would have protected the plaintiff from building any part of that which was opposite Brunswick street beyond the line shown on the model, which he supposed was the 45-degree angle that protection was here intended for the benefit of the whole site, and the plaintiff would have had the right to treat it as a whole. To suggest that anybody could rebuild the two buildings upon the foundations of their own site was absurd and impossible. It was said by the defendants that

that might have been so in the case of an injunction, but that it was not so in a case where no injunction was asked, and that it had not been applied for at all, where damage only was asked. His lordship asked himself why not? A wrongful act had been committed by the defendants. What damage had the plaintiff suffered? It had been argued that the damage was confined to the loss of light, and that in the rear, the only thing you could do in such a case was to say what damage had accrued to the plaintiff with reference only to the actual building in which there were no windows, and that it was a house with a garden at the back or side, and that all you were entitled to consider was the value of the rays of light which should be prevented from coming into the apertures of the house. He failed to see that the Colts case had any bearing on the question of damages. He failed to see why, in a case like the present, they should not consider the damage done to the plaintiff's whole site. He thought this was a case in which they were not merely to consider what damage the plaintiff had suffered by reason of the wrongful act of the defendants in interfering with the plaintiff's ancient lights. He thought that the learned judge was right in saying that the plaintiff was not to be dismissed with costs, and that the appeal should be dismissed with costs. The Lords Justices delivered judgments to the same effect.

NORWICH BUILDERS' AFFAIRS.—The first meeting of the creditors of Mr. Frederick George Tibby, builder, of 191, Earham-road, Norwich, took place at the Court of the Official Receiver, Mr. R. Gould, on the 14th inst. Debtors' statement of affairs showed gross liabilities amounting to £11,773 12s. 6d., expected to rank £1,455 15s. 3d., deficiency £235 12s. 6d. The Official Receiver said that the Official Receiver had taken into consideration the fact that the deficiency was now about £1,314. The causes of failure, as alleged, by debtor, were: "Depression in building trade, and depreciation in value of the houses on speculation." The Official Receiver stated debtor commenced trading as a builder at Norwich, about twenty-four years ago, with a capital of £20. His business has consisted mainly of building houses on speculation. No real estate was kept in the hands of the debtor, but only a "jobbing book." About twelve years ago debtor joined in starting the "Eagle Laundry," contributing about £200 to the capital of the firm, and the partnership was continued until the death of Mr. Walker, his widow, and after her death with her son. The principal creditors were Messrs. Francis and Back, £7,507. The meeting decided to leave the matter in the hands of the Official Receiver.

RELIEF FROM BREACH OF BUILDING COVENANTS.—Hynan and Rosenthal v. Rose & Co., Ltd., House of Lords, on Tuesday's judgment was delivered by the Lord Chancellor, Lord Macnaghten, Atkinson, and Shaw, of Dunfermline, in the appeal against an order of the Court of Appeal. The Master of the Rolls and Lord Justice Macnaghten, Lord Justice Buckley dissenting, dated April 8, 1911. The Court of Appeal affirmed the following orders: (1) An order of Mr. Justice Hordidge, dated February 4, 1911, restraining the appellants, underdeas and agents, from valuing the front elevation of Adelphi Chapel, Hackney-road (built in 1845), or substantially altering the character thereof until the trial of the action or further order. (2) An order of Mr. Justice Hordidge, dated March 2, 1911, under the provisions of Rose v. Hynan and Rosenthal, of Mr. Justice Ridley refusing to grant relief from forfeiture of the premises. (3) Two orders dated March 2, 1911, of Mr. Justice Ridley to the like effect. By an order dated March 2, 1911, the Court of Appeal directed that the premises were demised to lessees for 99 years less 10 days on a repairing lease and subject to restrictive covenants. The respondent was entitled to the reversion, the appellants were to carry on the business of a cinematograph theatre. Structural alterations were in contemplation for this purpose, but the appellants disclaimed any intention to dedicate any part of the premises to the use of the public, and stated that they intended, by the erection of movable iron railings, to exercise full rights of ownership over the land surrounding the building, and included in that the use and enjoyment of the land. The Court of Appeal to deposit money sufficient to reinstate the premises at the end of the term, so that the respondent would be absolutely secured in having the building in its original condition on the expiration of the term. The appellants, Messrs. K. and D. Disturnal were for the appellants; and Mr. P. O. Lawrence, K.C., and Mr. Herbert Higgins for the respondent. The House allowed the appeal. The Lord Chancellor, in his judgment, said the case was not a case of what was upon what terms, if at all, relief should be

given against forfeiture for breach of covenant in a lease of Adelphi Chapel, which was No. 14, 29 of the Convention, No. 1841. When the case was decided, the decision would have to be applied to the orders made by the Court of Appeal, and by the several Judges and Masters before whom this intricate case of fact and law had been discussed at different stages. His lordship pointed out that the discretion given by the section was very wide. The Court should consider all the circumstances and the conduct of the parties, and should be prepared to provide a wide discretion, meaning, no doubt, to prevent one man from forfeiting what in fair dealing belonged to someone else, by taking advantage of a breach by which he was not commensurately and immediately compensated. It was not always able to lay down any rigid rules for guiding that discretion. In this particular case there had been breach of covenant which had to be remedied as a condition to relief, but the real dispute related to certain alterations which had been effected and were insisted upon by the appellants for the purpose of turning this chapel into a place of public entertainment. His lordship had examined the lease and had found that the same was made in 1841, and that it was arrived at by Lord Justice Buckley, and he did not find anything in it which required that the building should be used as a chapel. Certain trades were forbidden, but no restriction was placed on the use of the building for any other trade. Nor was there anything to prohibit internal alterations suitable for such trade. The removal of the wall and iron railing was not shown to be a breach of covenant because it was not shown that the wall existed at the time of the demise. No harm was done to anyone, and the reversion was in no way injured. The opening of a new door in the west wall stood upon the same footing. As to the internal changes relating to the staircase and the floor, it seemed that they were quite legitimate for the purpose allowed by the lease; that, indeed, was the governing consideration. The appellants were willing to deposit sufficient money to reinstate the building to its former condition at the end of the lease, and as they were asking for an indulgence in regard to other admitted breaches of covenant, the execution of this offer should be made a condition of the grant of relief. In enquiring whether the offer was in excess of what the Court would exact. He agreed that these terms should be in the form suggested by Lord Justice Buckley. The other learned Lords concurred. Appeal allowed.

INCREMENT VALUE DUTY.—STOCCESSELL APPEAL. Mr. J. M. Clark, the referee, has given judgment against the Commissioners of Inland Revenue in an appeal brought by Mr. Robert J. Lumsden, under the Finance Act of 1909-10. The appellant was assessed to increment value duty in respect of a house and shop in Lansdowne-road, Forest Hill, Northumberland, and a gross duty of £25 was charged in respect of an alleged gross increment value of £125. The occasion on which the duty was alleged to be payable was the transfer of the property on August 23, 1910, the consideration for the transfer giving rise to the claim being £750. At the time of the sale the fee simple of the property, if sold in the open market by a willing seller, was in that condition, free from encumbrances and from any burden, charge, or restraint other than rates or taxes, might have been expected to realise £625, the fee simple of the land alone being £475, less the amount of the mortgage of £150. The appellant alleged that the value of the property at the time of the sale was £1,005, and consequently that the value of the site on the occasion within the meaning of Section 2 of the Act was the true value—namely, £405, and not the value of £250 claimed in the assessment. (b) In the alternative, there was any increment within the meaning of the Act it was attributable to some one or more of the elements mentioned in the appellant's notice of the appeal. It was relied on behalf of the appellant that the Inland Revenue contended that on the true construction of the Act the site value of the land on the occasion giving rise to the claim was not £405, but the price paid for the property, £750, less the amount of the mortgage of £150, and the difference, £600, was the market value at the time of the sale (£625, and the site value of the land at the time of the sale (£405), and that the difference between this result (£220) and the original site value (£250) was the increment value of the land; (c) that the proper amount of deductions to be made in arriving at a site of the land on the occasion for the purpose of the Act was the difference between the market value of the land on the occasion (£625) and the true site value of the land on the occasion (£405). The referee added that he was of opinion the contention (a) of the

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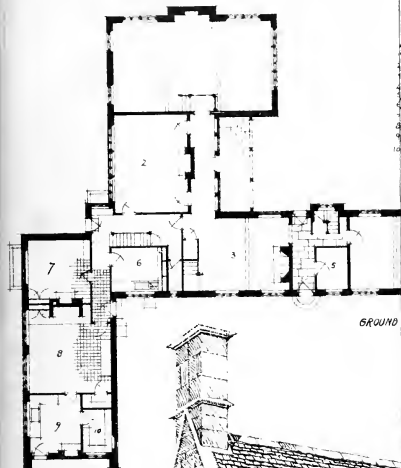
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Do, Mauritius	42 10 0	..	43 0 0
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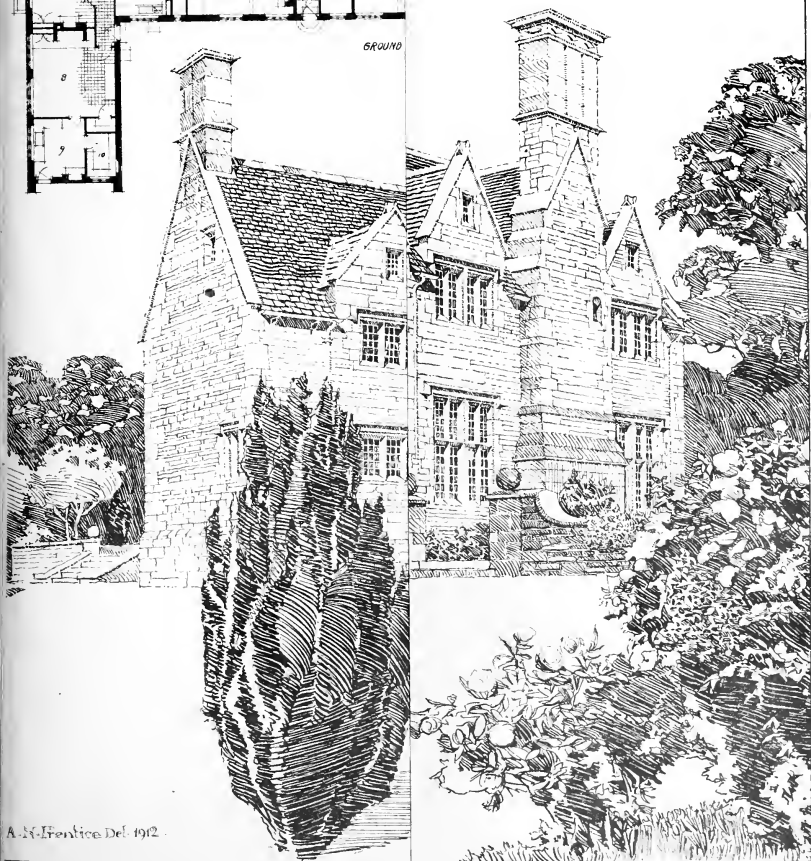
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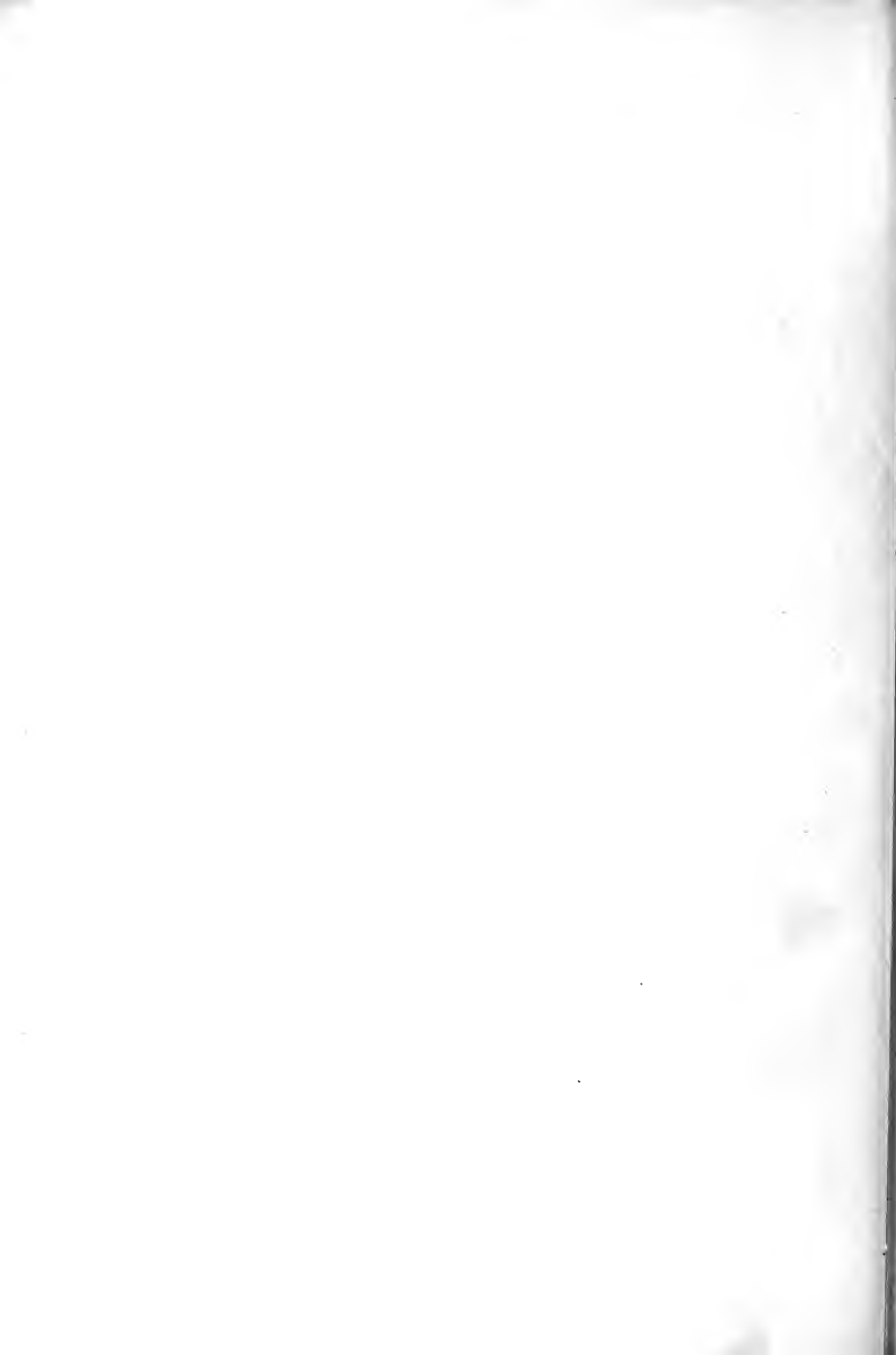
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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Ethingam House,

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St. Joseph's Church, Aldershot. Interior view, elevations, and plans. Design by Messrs. H.R. and R.A. Poulter, Architects.

Entrance Lodge, Pilske, Forfarshire, N.B.; Sir R.S. Losh, A.R.S.A., Architect. The Fox and Pilske, Grays, Messrs. Reed and Macdonald, Architects. From "Modern Cottage Architecture," by Mr. Maurice B. Adams, F.R.I.B.A.

THE AMERICAN BUNGALOW.

By GEORGE ASHDOWN AUDSLEY, LL.D., Architect.

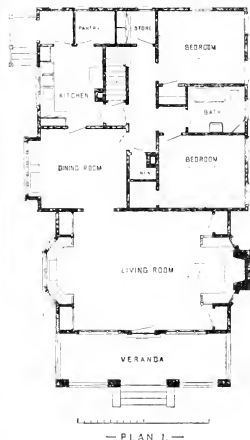
To the dwellers in city streets, or in the suburban districts around our large towns, in which dwellings of three or more stories, closely huddled together, seem to be the order of the day, the delights of the Bungalow, as it exists in the favoured spots in the United States, and notably in such a paradise as Pasadena, in the State of California, are absolutely undreamt of. To those who love a simple life, in which comfort obtains without the chains of ceremony, and in which empty pretensions had nothing to feed upon, there is no dwelling so absolutely congenial and restful as a well-planned, one-story, and roomy bungalow.

Picture a small dwelling, in a garden of flowers, growing in all the freedom of uncultivated Nature; surrounded with peach and orange-trees laden with golden fruit; and with its pergola almost bending under its load of luscious grapes—picture all this under an azure sky, and fanned with a perfume-charged breeze—and compare it with the best our speculative builders are offering to-day in the so-called "garden suburbs."

We cannot transform the English climate into that of Southern California, and I, for one, would not desire to do so, even if it were possible; but we can easily learn a lesson from what the architects of that country are accomplishing in the direction of domestic accommodation and home comforts, at very moderate expenditures. We can surely accomplish something of a kindred nature, especially in districts where land is plentiful, and can be secured at a moderate figure; and we well know that in the outside matter of fruit and flowers this country need not envy California, even though it cannot grow oranges in the open air. With these few words by way of introduction, I may enter directly on the subject of bungalow planning, with special allusion to the plans prepared for the present article, which are representative types of those commonly adopted for bungalows of moderate dimensions and cost. The term bungalow does not necessarily mean a small, one-story dwelling, for it is often applied to a house of considerable size, which, in addition to a spacious and well-appointed ground floor, replete with every necessary modern convenience, may, and commonly does, possess a roomy attic, containing bedrooms, bathroom, and rooms for storing trunks and other things not in daily use. This attic is, however, invariably in the

roof proper, the eaves of which are seldom higher than is rendered necessary by the moderate height of the ground story, and which frequently extend beyond the walls to form the covering of the veranda—a practically universal and indispensable feature in the bungalow. To such large bungalows I need not further allude in this short article.

The smallest bungalow commonly comprises a single living-room, opening directly from a veranda, a kitchen, two bedrooms, one of which may be very small,



— PLAN I. —

a bathroom, and two or more convenient closets. If the bungalow is to be occupied all the year round, a small cellar will be provided, in which a central hot-air apparatus will be placed. In addition, a fireplace of good size, for burning logs, is usually provided in the living-room. Of a bungalow of this very simple character it is unnecessary to give a plan. The most important feature in all good bungalow plans is the general living-room, which occupies a similar position, so far as its utility extends, to the old English "hous-plate," still to be seen in some of the dwellings on the dairy-farms of Cheshire and elsewhere.

In small bungalows, this apartment serves as a dining-room, as well as a general sitting-room, requiring in such a case to be of considerable size, especially in its length, and to be fitted with as many conveniences as space will permit. The living-room is usually entered directly from the veranda, with at the intervention of anything in the nature of a porch or vestibule having double doors. In bungalows in warm climates, or in those only inhabited during the summer and autumn, a direct entrance is to be desired, and the solid floor of this is left open during the day, the opening being simply protected against insects by a light screen door, as indicated in Plan I. The living-room should be well lighted, so that all its part may be equally pleasant and attractive. A good example is furnished by Plan I., in which the room is devoted to its legitimate use. In addition to the two large windows under the veranda, it has a large projecting window at its west end (the veranda should in all possible cases face the south), fitted with box-seats, and two windows in the "angle-neck," adjoining the fireplace, at the east end. In bungalows occupied in early spring, or all the year round, the fireplace, with all its pleasant accessories, is a most desirable addition, even when a central heating system is provided. A blazing log-fire has charms peculiarly its own. In the apartment under consideration, two cupboards and two book-shelves are provided, adding much to the general comfort and convenience. Another and differently-planned living-room is shown in Plan II. In this arrangement, the angle-neck is not so favourably placed for a daylight lounge; but the recess at the end of the room, with its window and seats, forms a comfortable place for reading or fancy-work. Two convenient cupboards flank the recess. A feeling of spaciousness is imparted to the living-room by the manner in which the dining-room opens from it.

In Plan I. the dining-room is also entered from the living-room through a wide opening, which would, in all probability, be hung with portières. The room is lighted by a large projecting window fitted with a box-seat. The kitchen communicates directly with the dining-room by a serving-door—the most convenient form for serving purposes—and is fitted up with cupboards, drawers, sink, and two washing tubs, in addition to the stove and hot-water cylinder, as indicated. The stair to the cellar descends from the small space between the kitchen and the inner passage, from which the bedrooms and bathroom are entered. In this passage is

the chimney, set (warm) in cold weather, the furnace door, which ascends through the roof, and at its other end is located the front stove-room, the door of which has upper panels glazed, so as to light the passage, assisted by light from similar glazed panels in the doors between it and the kitchen, and also in the bathroom door, considered desirable. The stair to the two attic bedrooms rises from the passage.

ment of all the rooms is extremely simple, and, from the bungalow point of view, very convenient. The dining-room is separated from the living-room by sliding doors. The living-room has a large fireplace, and on each side of its breast are low cupboards and drawers, surmounted by glazed bookcases. A box-seat is placed along the wide window. The stair from the dining-room leads to the two bedrooms

what small, and it was a difficult matter to provide the accommodation asked for and, at the same time, to leave space for open and well-shaped playgrounds.

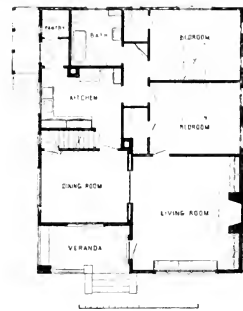
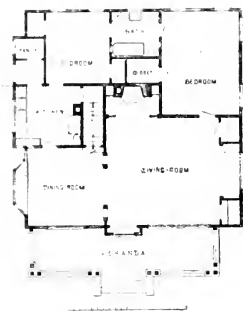
Competitors could provide either one hall for the joint use of the three departments, or separate ones for each. The type of plan which was apparently most favoured by the assessors was a T-shaped one, with one large hall at the intersection. This plan certainly adapts itself well to the site, but has one serious objection in that it necessitates placing a number of the classrooms with a north aspect. While opinions may differ as to the advisability or otherwise of a direct south aspect, everyone will agree that it is essential that a classroom should have sunlight during some part of the day. Of course, in a one-story school it is possible to get a certain amount of sunlight into any classroom by dormers over the corridors; but this is hardly a satisfactory arrangement. This question of aspect only serves to emphasise the uncertainty of competition work, especially when the opinions or prejudices of the assessor are not known beforehand. In this particular case, it is safe to predict that nine assessors out of ten would have ruled out both the first and the second designs on the question of aspect alone. Another type of plan which was in evidence was on the quadrangle system, in which the various rooms are grouped around one or more open courtyards. With so small a site, this type was hardly a success, as so much room was taken up by the buildings that very little space was left for playgrounds. A third type showed the senior departments and the infants' department in separate buildings, arranged along the east and west boundaries, with the centre of the site left open for playgrounds. By this means the north aspect for classrooms could be avoided; but it was necessary for the infants to have a separate hall of their own. Practically all the plans exhibited belonged to one or other of these types, with a large preponderance in favour of the T-shaped one.

The school was to consist of three departments—for 250 boys, 300 girls, and 250 infants respectively—together with a domestic subjects centre, manual workshop, caretaker's house, and a spare room which might, if ever required, be used for shower-baths. The total cost was not to exceed £10,000.

The design placed first, by Mr. J. T. Proffit, is, on the whole, a satisfactory one. A number of the classrooms have a north aspect; but that, as mentioned above, is unavoidable if a T-shaped plan be adopted. The entrances and cloak-rooms adjoin the hall, and, as the scholars will no doubt assemble in the hall both at the beginning and at the end of the school hours, this is probably the best position, though it is possible to ventilate the cloakrooms better if they are situated at the ends of the building. The placing of the lavatories in the cloakrooms is hardly in accordance with modern practice. The playgrounds are excellent, being open to the south, and of good shape; but the position of the latrines, which adjoin the cookery-room in one case and the parlour of the caretaker's house in the other, is bad, and will doubtless have to be revised before the plans obtain the approval of the Board. The elevations are very poor.

Mr. E. R. Barrow's scheme, which was placed second, is on similar, but more symmetrical, lines than the selected one. The entrances are not so well arranged, and the playgrounds are more irregular in outline; but the elevations are decidedly more interesting.

The third design, by Mr. J. A. O. Allen, is a variation of the T-shaped plan, but has



The two bedrooms on the ground-floor are of good size, and are provided with wardrobe-closets as usual in American bungalows. The rear and larger portion of the bungalow would have a low-pitched, overhanging roof, gabled east and west, while the roof of the front portion, of a somewhat lower pitch, would extend over the veranda, and have a single gable toward the south. A suitable window would be inserted in each of the gables, lighting the bedrooms situated under the higher portions of the roofs.

Plan II. shows a comfortable bungalow of a square form, the kitchen portion being slightly projected, but not carried into the gable above. The veranda would, as a general rule, be covered by an extension (at a less slope) of the main roof; but otherwise it would have an independent roof, gabled in front. The interior arrangement is extremely simple, and of a character very commonly found in American bungalows of moderate dimensions. The appointment of the living-room has already been described. The dining-room is conveniently placed, and is directly reached from the kitchen through a swing-door. The stair which rises from the dining-room leads to the two attic bedrooms and box-rooms. The kitchen is fitted up in a manner similar to that in Plan I., and is also provided with a cook's entry, opening from the kitchen lobby. A stair from the kitchen leads to the cellar, containing the hot-air apparatus. The two bedrooms have direct communication with the bathroom, and have convenient wardrobe-closets. The principal bedroom is reached from the living-room. The roof of the veranda is supported on square posts, with a breast cast on piers. Such a design, with the foundation walls of the veranda and entry commonly built of concrete, and the gable-ends of the bedrooms and bathroom of brick, would be a very desirable and economical arrangement.

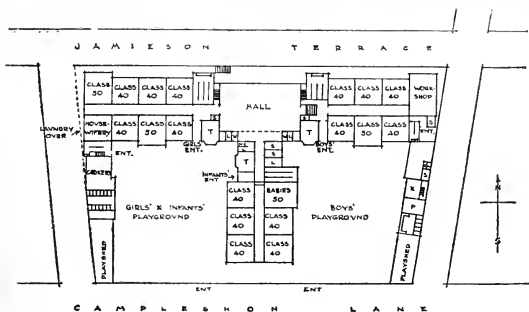
Plan III. shows a more compact bungalow, with a central living room, dining room, kitchen, and two bedrooms. The arrangement is similar to Plan II, but with a different layout of the rooms and a more compact overall form.

occupying the central, higher portion of the roof, which may be gabled either east and west, or north and south, as taste may direct. The kitchen is fitted up in a manner similar to those already alluded to, and from it the stair descends to the cellar, in which is placed the hot-air apparatus, etc. The bedrooms are of good size, and have convenient wardrobe-closets. The bathroom, 8 ft. 6 in. square, is fitted with every necessary convenience, as indicated.

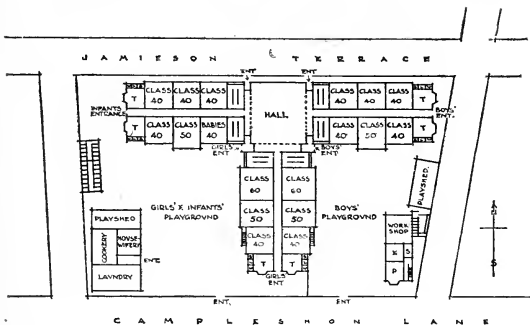
This article has treated only on the planning of the American bungalow. To enter on the subject of its external architectural design, and on matters of construction, would call for a special essay quite as long as the present article.

YORK ELEMENTARY SCHOOL COMPETITION.

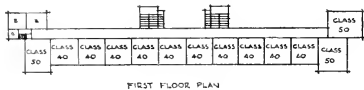
We have already announced the result of this competition, in which no fewer than 203 designs were submitted. Out of this number, the assessors, Messrs. T. Mellard Reade and Son, selected twenty-nine for further consideration, and these have been on view at the York Art Gallery during this week. It was probably owing to the difficulty of obtaining a room of sufficient size that the whole of the drawings were not exhibited; but the exhibition was thereby shorn of much of its interest, as a number of the twenty-nine were very poor indeed, so much so, in fact, that it is hard to believe that there were not better ones among so large a selection as 203. The competition was interesting from the fact that it was one of the first open ones to be held since the Board of Education's new requirements came into force. The type of plan now favoured by the Board is one in which the hall is kept entirely separate from the classrooms, so that it may be used for singing, gymnastics, etc., without disturbing the occupants of the other rooms. School planning is, therefore, at present in a transitory stage, and it was hoped that this competition would produce something which would help in evolving the new type of plan which is required. The site is, or rather will be, bounded by roads on all its four sides, but is some-



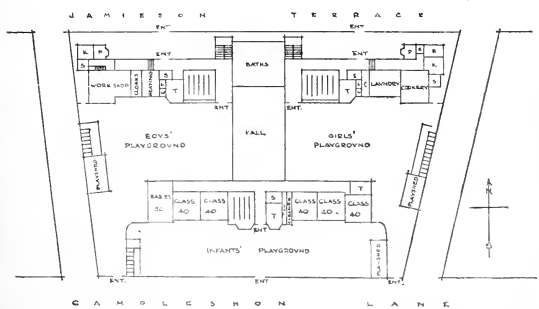
DESIGN PLACED FIRST.—Mr. J. T. PROFFITT, M.I.C.E., Architect.



DESIGN PLACED SECOND.—Mr. E. R. BARROW, F.R.I.B.A., Architect.



FIRST FLOOR PLAN



DESIGN PLACED THIRD.—Mr. J. A. O. ALLAN, Architect.

several distinctive features, the chief of which is that every classroom has a south aspect. This has, however, only been achieved by putting a cross-piece in the tail of the T, which cuts up the playgrounds rather badly, in addition to which all the classrooms in the boys' and girls' departments are on the first floor, the hall being on the ground floor. The lighting and ventilation of the whole building are excellent.

The design placed fourth, which was by Messrs. Wright and Hamlyn, is in some respects better than the first three, but would be improved if the positions of the departments were reversed. A number of the classroom windows are right on the street-line, and the room for shower-baths is lighted only by pavement lights. The elevations are simple and unassuming.

Mr. Edwin Cooper submitted a very simple and compact plan, which would have stood a good chance but for one serious defect—the boys' and girls' corridors were blocked at one end, and had no end windows or exits. Otherwise, this was quite one of the best plans in view, while the simple and picturesque elevation compared favourably with any of the others.

Messrs. Ad-head, Topham, and Ad-head divided their infants' department from the seniors' one, placing the former on the east boundary, and the latter on the west. The majority of the classrooms had an east aspect, while none had a north one, and the playgrounds were square and sunny. A number of the classrooms were rather narrow; but, on the whole, this was an excellent scheme, and deserved a better fate.

Messrs. Wills and Anderson's block plan was, perhaps, the best of all, as it consisted of a single building extending along the whole of the north side of the site, leaving all the rest free for playgrounds. This was achieved by placing the girls' classrooms and the domestic, science, and other special rooms on the first floor; but the assessors evidently regarded it as essential that the classrooms should be on the same level as the hall, which no doubt is the most satisfactory arrangement.

Messrs. Cheers and Smith had a very compact and straightforward plan, but made the mistake of reversing the T, thus keeping the sunlight from the playgrounds to some extent, and leaving them exposed to the north winds.

Messrs. Shaw and Wadsworth showed what was, perhaps, the best of the courtyard plans; but while the building itself was an excellent one, it occupied so much space that the playgrounds were very narrow and cramped.

Mr. Abel Round submitted a scheme with many good points, and had carefully considered the aspect of the classrooms; but the plan would have been considerably improved if the classrooms could have been more effectually screened from the rest of the school.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The fortieth meeting of the Royal Institute of British Architects, for the present session was held on Monday evening at 9, Conduit street, W., the chair being occupied by the President, Mr. Leonard Stokes.

RECENT UNIVERSITY ARCHITECTURE IN THE UNITED STATES.

A very full paper on this subject, by Stuart D. A. Thompson, was read, illustrated, and by James C. H. Jones, Esq., M.P., Mr. R. A. Cram, Esq., of the Committee of Education of the American Institute of Architects. The paper dealt with the

Mr. Cram's collection of photographs and drawings will be on view at 12, R.I.B.A. Galleries, 9, Conduit-street, W., until Saturday, June 1. Admission—pre-entration of visiting card.

changed, its chapel. The new type shows suits of a study and two bedrooms for two undergraduates, and a study and bedroom for each graduate student, with a private bath behind every two suites. There are, as everywhere, large and well-equipped gymnasia, and magnificent schools of science. The dormitories at Princeton were designed by two young men from Philadelphia, John Stewardson and Walter Cope, both of whom died at a pathetically early age. Cope and Stewardson's work at Princeton was so beautiful, so convincing, that the University authorities wisely passed a law that for the future every building erected at Princeton should follow the same general style. Seventy-nine Hall, Patton, McCosh, and the Gymnasium followed in quick succession; then came the great Palmer Physical Laboratory, the Biological Laboratory—Guyot Hall—Upper Pyne, and Lower Pyne; and a little later, after Mr. Cram had become supervising architect, Campbell Hall, by the way, the latter, the altogether wonderful quadrangles of Holder and Hamilton Halls, by Messrs. Day Brothers and Klunder, of Philadelphia. The most recent Princeton work is the great Graduate College the lecturer's firm is now building. The plan exhibited showed only the work now in hand, the great quad, with the great hall and its kitchen, together with the Cleveland Tower, a national memorial to a former President. In some distant future a second quadrangle will be constructed to the south and east, containing the chapel, the library, and quarters for fellows, which will restore the tower to the centre of the composition. Some day a third quad will be developed to the north-east, and then the group will be complete, for the dean's lodgings, with their private gardens, to the south-west of the great hall, are already under construction. Mr. Cram also referred to the great Universities, including Columbia and New York, McKim, Mead, and White's work at Princeton, the Princeton Alumni Hall at Yale; to the Naval Academy at Annapolis, which is strictly French; and the University of California, which is growing on scrupulously Beaux Arts lines. The Georgian style is employed at Harvard and Williams, and in the colleges for women in Exeter, in Virginia, and Wheaton, in Massachusetts. Georgian also, with rather quaint Roman elements, has been used by McKim, Mead, and White for the vast War College at Washington. The University of Pennsylvania shows still more of Cope and Stewardson's wonderful work, though here it is couched in an extremely rich Elizabethan vernacular. Washington University, St. Louis, is later work of this same firm of Cope and Stewardson, after the latter had died, and good as it is, it shows the loss of the peculiar poetry that marked everything Stewardson touched. In the additions to Chicago University, Shepley, Rutan, and Coolidge have been badly handicapped. For contrast, compare Mr. Best's "College of the City of New York," which is as poetical, fantastic, and imaginative as the other is austere and cautious. Mr. Cram also illustrated two theological seminaries—a Presbyterian one, by Messrs. Allen and Collins, in New York, and a Roman Catholic institution, by Messrs. Maginnis and Walsh, at Boston. In Leinster, the lecturer showed some views of the beautifully situated Military Academy of West Point, which is Gothic, and of various types and phases.

At the close a cordial vote of thanks was awarded to Mr. Cram on the motion of Mr. Edward P. Warren, seconded by Sir Aston Webb, C.B., R.A.

R.I.B.A. FINAL EXAMINATION RESULTS.

The Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students, who are qualifying for the Final Examination, have been approved:—
Subject I. (a). A Large Monument to Commemorate King Alfred's Re-founding of London.—Mr. H. A. Dod, Mr. Hal Harper, Mr. Ernest Prestwich, and Mr. H. C. Bradshaw.

Subject I. (b). A Terrace of Five Houses.—Mr. R. F. Dodd, Mr. Walter E. Woods, Mr. S. Stevenson Jones, Mr. W. Harding Thompson.

Subject II. (a). A Large Monument to an Explorer.—Mr. H. Lidbetter, Mr. R. S. Dixon, Mr. F. O. Laurence, Mr. E. A. Broadhead, Mr. R. Duckett, Mr. E. F. Bothwell, Mr. C. M. McLachlan, Mr. W. E. Wooding, Mr. R. A. Barker, Mr. J. O. Cheadle.

Subject II. (b). A Cloister with External Entrance Gateway or Tower to a Collegiate Building.—Mr. H. A. Dod, Mr. H. C. Bradshaw, Mr. E. Prestwich.

THE SOCIETY OF ARCHITECTS' EXAMINATIONS.

The Easter examinations were held on April 2, 3, and 4 in London, Manchester, Leeds, Cardiff, Birmingham, Oxford, and Dublin, the latter being a rest centre.

The Council have appointed Mr. A. Alban H. Scott, M.R.S.A., Inst., examiner in Section IV. (Sanitary Science), in the place of Mr. C. H. Mead, M.R.S.A., Inst., who has been compelled, owing to continued ill-health, to relinquish the duties. Mr. R. Wilcock, F.R.I.B.A., examiner in Section IIIA, was prevented by a serious illness from completing his duties, which were undertaken by the Chairman of the Board of Examiners, Professor Henry Adams, M.Inst.C.E.

The following have satisfied the examiners:—

Edward Richard Bill, 7, Preston-street, Shrewsbury; William Bradley, 22, Rishington-lane, Great Lever, Bolton; Sydney Fritz Evershed, c/o Messrs. Law and Harris, 1, Sheep-street, Northampton; William John Hadley, 12, Richmond-terrace, Carmarthen; Henry Lyons, Ivanhoe, Waverley-avenue, Fairview, Dublin; Harold Ewart Matthews, Llanvair, The Avenue, Yeovil; Donald John Moss, 43, Linden-grove, Peckham Rye, S.E.; J. H. Phayre, 12, Promenade, Bournemouth; Chesire, c/o George Herbert Russell, Highbury Lodge, Hitchin; Edward Denton Sherlock, 12, Egerton-road, Fallowfield, Manchester; Reginald Hardy Syms, Rosmore, The Grove, Islworth; Robert Thompson, "Brookside," Catshill, Bromsgrove; Harold Aescens Wilkinson, 68, Bury-road, Neele Park, Wood Green, N.

The following students of the Society have obtained sectional certificates:—

Section I. (Architecture).—Francis Clenes, Weston-super-Mare; Charles Ford, Reading; William John Isaac, Warrington; Arthur Barnes Johnson, Croydon; Percy Morris, Nelson.

Section II. (Building).—William John Isaac, Warrington; Fredrick Edwin Kelle, London; Leonard Arthur Reynolds, Hull; Fredrick John Taylor, London.

Section III. (Practice).—Halstead Best, Whitworth; Harold John Lurecock, London; John Slater, Blackburn; Edward John Williams, Leicester.

Section IV. (Sanitation).—James Alvin Grimshaw, Accrington; Harold John Lurecock, London; Percy Morris, Nelson; Clement Frost Over, Weston-super-Mare; John Edward Sanders, Liverpool; John Slater, Blackburn; Fredrick John Taylor, London; Edward John Williams, Leicester.

A PHOTOGRAPHIC EXHIBITION.

There is a one-man show now on view at the Camera Club, John-street, Adelphi, which will well repay a visit, for the artist is Mr. J. C. Warburg, a long known for his excellent work. Exactitude of definition, we know, given place to impressionist ideas, and during the last decade this departure from the earlier photographic methods has been carried, no doubt, to the borders of extreme, generally speaking, in the effort to emulate the character of water-colour or monochrome. Mr. Warburg, though moving with the times, seems wisely to have foregone such extravagancies, and he recognises, too, in the main, the limits of the art which he prac-

tises so cleverly. Thus, in No. 27, "On the Chalk Downs," with old tower and mill, seen in brilliant sunshine, away in the middle picture, the shadows from the sweeps appear exactly as in nature, and also relatively recorded in reference to the rest, by which we mean to the clouds, and the breezy air—an impression adroitly secured by this print; and yet the shadows are very definite and quite distinct from the highlights. The next study, No. 28, "Stonehenge," exhibits precisely the same good judgment, giving the texture of the ancient monoliths against the sky, unnumbered by over-accenation of the foreground, No. 3, "White Domes," from the Court of Honour at the Great White City is a silvery study in which the busy detail is moderated by a hazy glamour, leaving something to the imagination, which, in such a case, makes for advantage. The same buildings appear in a three-colour collotype, No. 36, by Mr. F. T. Hollyer, worthy of praise, the colour being merely suggested. ("The House on the Marsh," No. 50, with the barn and big trees amidst the wild profusion of overgrowth in front, is worth noting.) The appreciation of different values, No. 63, "St. Ives Harbour," deserves recognition. The old church tower and harbour wharf walls both subordinated to the sharp prominence and scale portrayed in the front by the bow-sprit of a passing craft. Mr. Warburg's silhouette are really good, with their slightly toned edge and precise preservation of outline, as in No. 59 and 49, illustrating fancy studies of children. The photo relief in plaster of the interior of the chapel, Ile St. Honorat, silvered, is sufficiently far from success to be avoidable, and it is also by no means effective. (No. 66, "Notre Dame de Vie," seen amongst the cyresses (No. 73) is, on the other hand, a faithful picture of an architectural kind, finished on rough paper with somewhat of the texture of a water-colour, showing the deep, long-lined shadows of the trees in front of the arched portal of the church, with its square campanile sort of tower, surmounted by a conical roof. We also noted "The Barley Field," and "Cromer Pier," two totally different subjects handled in opposite ways and suitable to the silver print-like delicacy of the lighter prints are supplemented by silvered frames, while the more or less appropriate style of mounting has become an art of itself, not always sufficiently subordinated to the photographs, judged and valued as such. Mr. Warburg's work is far from being stereotyped, and he obtains most interest, but only by his varied methods, rather than a constant choice of subjects and good points of view.

The Elaine and Desert Cottage Hospital is about to be considerably enlarged from plans, prepared by Mr. J. Johnson, F.R.I.B.A., architect, Aberystwyth.

The boards of guardians for Derby, Gairol, Chesterfield, East Retford, Mansfield, Newark, and Southwell are combining in a scheme for providing accommodation for feeble minded and epileptic cases. The plan, the architect contracts to erect, will be the equipment of the institutions, which will accommodate 200 persons, will approximately cost £70,000.

The award of the arbitrator in connection with the arbitration between the Southampton Harbour Board and the Tilling Dredging Company, under the award of the arbitrator carried out by the Company, has been issued. It states that the award of the arbitrator is £11,784 10s., and that the cost of the arbitration is £231 10s. 6d.

A new church is about to be built for St. Andrew's parish, Belford, in the town of Belford, Whitton, from plans by Mr. R. Bassett Preston, F.R.I.B.A. The church will consist of nave and two aisles of fan vaults, with clerestory above, and chancel flanked by an organ chamber on the north, and clergy house on the south. The church will be a semicircular baptistry at the west end and a tower at the south-west angle rising to a height of 60ft. The style is a simple transition of Late Decorated. The church will contain about 152 worshippers, and will cost about £3,000.

We reproduced Mr. Warburg's very fine photograph of this chapel in our issue of June 26, 1909, taken from the same negative as this relief; but we could scarcely recognise it in this sketch.



THE "FOX AND PELICAN." GRAYSHOLT.—READ AND MACDONALD, Architects.

the further fact that no building should be piped with piping less than 2½ in. in diameter. In a recent issue of "Keith's Magazine" the following statement is made:

"There can be no question but that the low pressure machines are to be the generally-accepted type for the future, as they are capable of performing vastly greater service than the high-pressure machines with small tools and limited pipe capacity. Moreover, they are simple in construction, they require a minimum of power, and are economical of up-keep and operation."

The earlier types of vacuum cleaning systems were almost invariably of high-pressure design; most of them derived their power from air pumps of the diaphragm pattern, which are necessarily complicated. This same idea was applied to the manufacture of most of the so-called portable-cleaning systems. However effective the high-pressure systems may be in the creation of vacuum, it has already been demonstrated that this method is not desirable.

In a test conducted in the city of Detroit, Mich., under the auspices of the School Board of that city, and by a board of disinterested mechanical engineers of international reputation, the unanimous verdict was in favour of a low-pressure, large-area system of stationary air-cleaning.

One such system consists of a powerful centrifugal fan, which can be located in the basement of the building, and which is exceedingly simple, having no complicated valves or diaphragms. A standpipe 2½ in. in diameter connects this machine with the various floors where the hose may be attached at convenient openings. The large area of the tools used in this system is capable of removing an enormous volume of air per minute, carrying with it all the dust and dirt and depositing it in an airtight receptacle in the basement. The dead air, with its impurities, is exhausted into a flue connected with the chimney.

Piping of this diameter is ample to allow the free passage of articles which would clog the ordinary pipes, and also to completely

change the air in the room that is being cleaned.

It is only a matter of time—and we believe it will be a matter of very limited time—before every new house will be piped for low-pressure vacuum cleaning, as certainly as it will be equipped with stationary plumbing, heating, and lighting systems. Thousands of buildings, already occupied, are being equipped with this system of cleaning every year. The only objection which has been advanced against this method of cleaning in the past, especially as applied to buildings of moderate cost, has been its expense. This argument is no longer valid, as the average home can be fully equipped with the most approved system of modern air cleaning at a cost of no greater than that required for a good heating plant.—*American Carpenter and Builder.*

FRESH DISCOVERIES IN EGYPT.

A lecture on the year's work of the British School of Archaeology in Egypt was given by Professor Flinders Petrie at University College, Gower-street, on Thursday last week. In its results the year's work had been, the lecturer stated, one of the most successful they had ever had. They had worked at three different centres—Heliopolis, Memphis, and Tarkhou, which was about 55 miles south of Cairo. At Heliopolis, which had been deserted since the Persian invasion in 525 B.C., the top surface of the site was dated by the pottery to the 6th century B.C., and there was scarcely a trace of the Ptolemaic, Roman, or Arab ages. The temple enclosure, three-quarters of a mile long, was surrounded by two great walls, each 400, to 500 ft. thick. In the north-east corner was a fort, also of massive brickwork. The great surprise, however, was the finding of an earlier fortress of the same type as that at Tell el Yehudiya, which he discovered in 1906, and attributed to Hyksos. They found here, near the well known obelisk, many pieces of another obelisk, created by Thothmes III., and reinscribed by Ramesses II.

The eastern gateway of the whole temple was also found, and fragments of inscriptions of ten different kings. At Memphis a gigantic sphinx of alabaster had been found. It weighed about eighty tons, and belonged either to the Eighteenth or to the Nineteenth Dynasty, about 1300 B.C. It would be set up again this summer, and would remain one of the sights of Memphis, like the great Colossus. At the north gate of the Temple of Ptah another sphinx, carved in red granite, and inscribed by Ramesses II., had been discovered. Near by was a group in red granite, representing Ramesses II. and the god Ptah standing. This weighed about nine tons, and would be sent direct to the Ny Carlsberg Museum, Copenhagen, as it was Denmark, and not England, that provided for the excavation of Memphis. Some day museums in England might have spirit enough for such work. At Tarkhou a large cemetery had been found. It dated from the earliest historic age down to the Pyramid Period. The special feature of the cemetery was the extraordinary preservation of both woodwork and clothing. Pieces of house-timber were found reused in the construction of the coffins. One of the coffins, made of basket-work (it was a hamper of large size) has been carried up by hand to the Cairo Museum. Wooden trays, bed frames, a large quantity of pottery, some three hundred alabaster vases and dishes, and copper tools were also found. The work was carried out by the students of the School, Messrs. Mackay, Wainwright, Engelbach, and Elverson, working with Professor Flinders Petrie. Mrs. Petrie made the drawings, and Mr. Lawrence, of Carthelmist, assisted in the excavations. Many of the discoveries will be exhibited in London during June.

The block of Egyptian dwellings for labourers in Benjamin-street, Liverpool, the foundation-stone of which was laid in November, 1910, by Mr. John Burns, the President of the Local Government Board, the first approaching in origin, The formal inauguration of the buildings will take place on June 14.

CURRENTE CALAMO.

We are glad to give with our report of Mr. Cram's paper at the R.I.B.A., an illustration of a design for a church interior by his firm, which was shown at an exhibition of the Philadelphia Chapter of the American Institute of Architects and the T Square Club. We wish the report itself did justice to Mr. Cram's paper; but we are, as usual, bound by the Institute "limit." It is not much of an encouragement to distinguished visitors to instruct or interest their English brethren when the professional papers are thus shackled, and Mr. Cram's paper suffers by condensation because there was not an inch of padding in it. Every word told, and, latish as it was when he finished, his hearers would willingly have enjoyed for another hour what all felt was in many respects the most pleasurable meeting of the session, thanks to its intrinsic worth and the charm of delivery which enhanced the value of Mr. Cram's paper.

The Birmingham City Council, which certainly no one can accuse of being in a hurry over its first experiment, on Tuesday resumed consideration of the report of the Town-Planning Committee upon the scheme for the Harborne and Quinton area. The scheme proposed a limitation of twelve houses to the acre, and Mr. Wallhall moved to substitute fifteen, on the ground that the smaller number would prevent the erection of cheap houses for the artisan class. Mr. Cornish seconded the amendment, which was opposed and was defeated by 91 votes to 5, three members not voting. We are glad of that. Twelve houses to the acre is a larger number than allowed in any of the "garden city" attempts. It is better than the ordinary eighteen, of course, and it is the business of progressive town councils to give the Act its fullest scope. In its general features the plan seems a fairly good one.

"The proposal to license architects and allow only licensed men to work on jobs of 2,000dol. or more would be a hardship on several thousand builders of Detroit," declares Robert G. McDonnell, a builder of that city. "Such an association would be a trust, nothing less. In common with hundreds of other builders in Detroit, I prepare the plans for a great many of the buildings I erect. Under this proposed License Act I would be barred from doing that, except on jobs of under 2,000dol. I would be forced to employ architects on all other work, and the consumer will pay the extra money. I consider myself competent to draw up such plans as I prepare, and there are hundreds of others, not architects, who are in the same position."

A petition from the architects of Detroit is, nevertheless, to be presented to the Council, asking for a license ordinance. It is proposed that any architect or architects desiring to establish an office in Detroit shall obtain a license. Except in the case of architects who have been practising in Detroit for one year preceding the date of the adoption of the ordinance, the license is to be issued only after the applicant has passed an examination, to determine his ability to prepare working drawings and specifications for various types of buildings, his work to conform with the city's building laws. Applicants to whom licenses are issued will pay a fee,

tentatively fixed at 25dol., and an annual fee of 10dol. for renewal of the license. Possibly, if registration is delayed much longer, some of our own municipalities will go to Parliament for similar powers.

It is wonderful what a wealth of illustration our own trade affords to the orator and the publicist. So copious is the store of imagery and allusion that it is, perhaps, hardly wonderful that some speakers get their references wrong. Still, we thought Mr. Charles F. G. Masterman "knew his Bible" better! Last week, twice—once in the House of Commons, and on Friday at Chester—he said that the Government were fighting in Parliament "as the people built the Temple of old," with the trowel in one hand and the sword in the other. Perhaps he was thinking of the rebuilding of the wall of Jerusalem by Nehemiah, when "every one with one of his hands wrought in the work, and with the other hand held a weapon; for the builders, every one had his sword girded by his side, and so builded"? Temple building is hardly the work of this Government just now!

Robert Henri, the artist, was talking at the annual exhibition of the Philadelphia Academy of Fine Arts about certain old masters. "Take, for instance," he said, "Morland. The illustrious and indefatigable Morland painted in the course of forty years 4,000 pictures. And of these— Mr. Henri smiled his quiet and intelligent smile. "Of these," he continued, "no less than 8,000 are still extant." And a good many of them still on this side of the water, we believe. So American millionaire buyers should seize the chance while they still go fairly cheap!

We think the Aldershot magistrate rightly dismissed the charge on Monday against a photographer who had been arrested for "intruding" in War Department land for the purpose of taking pictures during the Royal visit. The magistrates came to the conclusion that although under the Military Lands Act, 1892, the Secretary of State could make by-laws for prohibiting all intrusion on military lands, they did not think on this special occasion the defendant was an intruder, nor did he cause any obstruction. Therefore the officer had no authority to warn him off. In a similar case against another photographer the military authorities offered no evidence. It was stated that the military authorities had asked Press photographers what they were prepared to give to military charities for the monopoly of taking pictures during the Royal visit. If so, in our opinion it was unwise and unfair. Other Government departments of late seem to us to have acted similarly unfairly and unwisely. We applied some time since to the authorities for permission to reproduce some of the then recently-executed frescoes at Westminster; but were told the right and privilege of doing so was the copyright of a trading firm. This used not to be. Under proper regulations public property was available to all for the benefit of the public.

It is not wonderful that our own quarry columns from time to time declare the "failure" of asphalt, when one sees what is sometimes used as such, and at others the ignorance or carelessness with which really good material is employed. If architects

would always carefully specify asphalt of undoubted quality, such as Claridge's, as in the early days Sir William Tite did for the Royal Exchange, and would inform themselves more frequently as to its judicious application, failure would never be heard of. No better summary of useful information is available than the excellent little booklet just issued by Claridge's Asphalt Co., Victoria Embankment, W.C., which any reader can get free on application. Therein will be found valuable suggestions for the employment of asphalt for roofs, parapet walls, chimney stacks, channels, reservoirs, pavements, and flooring, and for damp-courses, foundations, etc. Tested by seventy years' experience, these details a self-commending themselves to all users of asphalt, and common sense will urge the selection of Claridge's asphalt and the prompt prevention of the use of inferior substitutes.

The county council buildings for Monmouthshire, at Newport, are about to be enlarged at an estimated outlay of £6,000.

A technical institute is in course of erection at Newmarket for the urban district council. Mr. H. Z. Linnell is the contractor.

The Local Government Board has sanctioned the raising of a loan of £10,835 for the widening and improvement of Golders Green road between the Golders Green Tube Station and Central Hendon.

Headed by Signor Marangoni, a committee is at work in Venice for the restoration, which will practically be the rebuilding of the famous chapel of the Rosary. The chapel, in addition to its artistic beauty, is a monument of historic interest, as commemorating the battle of Lepanto.

The Town Council of Buckie, N.B., have just adopted the plans of Mr. Douglass, of London, the engineer for the harbour extension scheme, giving an addition of seven acres to the water area. Messrs. Brand and Sons, of Glasgow, have for some time been executing the original extension contract, which they took at £76,324. The new extension is estimated to cost a further £37,854; addition to jetties, £2,045; embankment and reclamation, £3,341; slipway with nine berths, £6,000, making a total of £125,762.

A colossal marble statue of King Edward VII. has been placed on London Bridge, Tiverton, near the entrance to the town from the railway station. It has been executed by Mr. Harry Hens, of Exeter, as a commission from Mr. Thomas Ford, J.P., now the "Grand Old Man" of Tiverton, 94th year. Mounted upon its pedestal, the whole stands 17ft. high. The base itself is in grey Dartmoor granite, and the late King is represented in State robes. The statue is to be unveiled by the Countess of Portsmouth to-day (Friday).

Mr. Caleb J. White, the marble expert employed by Messrs. Martin and Co., of Calcutta, for the Victoria Memorial Hall, died at the hospital at Cawnpore on Friday, April 5, after a brief illness. He went out to India in October, 1910, to organise all the marble work required in the construction of the Victoria Memorial Hall and extension, the cleaning of the quarries at Makrana, and the erection of the machinery in Calcutta. Mr. White was an enthusiast in everything that concerned marble, and has visited all the principal sources of the supply. He was a native of Bristol and was for many years with Messrs. Arthur Lee Bros. He went to Hayes to manage the marble works when the firm removed there.

The Rural District Council of Flaxton, near York, proceeded at their last meeting to the appointment of consulting engineers. The following candidates appeared before the Council, having been selected at a previous meeting: Mr. S. Needham, L.R.I.B.A., architect and surveyor, 18, Conesey-street, York; Mr. E. J. Penny, M.S.A., architect, London-chambers; and Mr. F. Raney, architect, 34, Conesey-street, York. Mr. Needham and Mr. Penny each received nine votes, and the former was elected by the casting vote of the chairman. Mr. Needham, who is 44 years of age, has been in practice in York since 1896, and was for nine years architect for the whole of the properties of the Tadcaster Tower Brewery Co., Ltd., and since 1906 has been valued to the city overseers of York.

COMPETITIONS.

BEDFORD: RUSSELL PARK BAPTIST CHAPEL.—In a recent competition the designs submitted by Messrs. George Baines and Son, 5, Clement's-inn, Strand, W.C., were placed first, and they have been appointed architects for the scheme.

BURHILL: THE WHITELEY HOMES.—The trustees of the huge legacy left by Mr. William Whiteley for the purpose of providing homes for the aged and deserving, poor recently purchased an estate at Burhill, near Weybridge, and appointed Mr. Walter Cave, F.R.I.B.A., as assessor in a limited competition for laying out the site and erecting houses thereon. Upon Mr. Cave's recommendation the trustees have now appointed as architect Mr. R. Frank Atkinson, F.R.I.B.A., of 8, Sackville-street, W.

HALE TOWN PLANNING COMPETITION.—Since we published the notice dated 29th ult., the Council of the Manchester Society of Architects say that the District Council have reconsidered their decision, and have agreed to revise the conditions in respect to the three points named, viz.: To issue a plan of the district for the competitors, with particulars up to date, of houses, sewers, and main levels. To delete the clause in their conditions asking for the architect's inclusive fee for subsequent work. To appoint a competent adviser, to be approved by the Council of the Manchester Society of Architects, to assist the Committee. An extension of time for sending in plans will be given. The Council consider these conditions as revised are satisfactory. Their notice of the 29th ult. is therefore withdrawn.

MANSFIELD.—The limited competition recently held for a U.M. Church, Schools, Institute, and Caretaker's House, has been settled in favour of Messrs. George Baines and Son, 5, Clement's-inn, Strand, W.C., and the fixed portion of the scheme estimated to cost £4,700, is to be at once proceeded with.

PORTLAND.—In the competition for new offices for the urban district council, Portland, Dorset, seventy-seven architects' designs have been sent in. Mr. A. Needham Wilson, of 28, St. Martin's-lane, Cannon-street, E.C., has been appointed assessor. Premiums of £50 and £10 respectively were offered.

WELSH KING EDWARD MEMORIAL.—The executive committee of the King Edward Welsh National Memorial for the Prevention and Abolition of Tuberculosis, at their last meeting held at Westminster, received a report from the treasurers that the total promises and donations amounted to £201,740. It was decided to advertise for designs from architects, and sub-committees were appointed to go into the question of sites.

Mr. Pitkeathley has been appointed electrical engineer-in-chief of the temporary works for the Imperial Palace at Delhi.

The Otley District Council have adopted a proposal to ask the Local Government Board for authority to prepare a town-planning scheme.

At a cost of over £20,000, a new factory is to be erected in Vauxhall-walk, Lambeth, for Schweppes Ltd., according to the design of Mr. Arthur F. Briggs, 9, Queen Victoria street.

Messrs. Gordon and Gunton, Finsbury House, Blomfield-street, E.C., have been appointed architects to the Harpur Borough Council in connection with the erection of buildings, estimated to cost £25,000, for the extension of the electricity works.

Mr. F. H. French has been appointed borough surveyor of Harwich, at a commencing salary of £1,000, with annual increments of £16 5s. to a maximum of £240 per annum. Mr. French is to commence his duties on June 6.

At Tuesday's meeting of the Birmingham Corporation, the town planning committee obtained the approval of the council to their taking preliminary steps to promote a scheme for North Yardley, the chairman, Mr. George Chamberlain accepting an amendment to consider the desirability of including Stetchford in the scheduled area.

Correspondence.

THE FINANCIAL POSITION OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—“A Well-Wisher” has raised points that should be seriously put to candidates for the new Council.

I, too, have been checking off the accounts of other societies, and I think the establishment charges at Conduit-street are—I won't say wasteful, but very high in proportion to income.

I suggest that it would be the right thing to do to move for a special committee to inquire into this matter.—I am, etc.,

A PROVINCIAL ARCHITECT.

SIR,—I should say “A Well-Wisher” does not realise the work that is done by the staff of the R.I.B.A.

I admit the proportion of salaries to income is high; but the gross total would probably be very little more if the membership were doubled.

I am inclined to agree with “A Well-Wisher” in regard to the stiff examination fees.—I am, etc.,

SINEX.

THE R.I.B.A. ELECTIONS.

SIR,—Regularly with the advent of the R.I.B.A. Council and Committees election each year, there appear in the columns of the professional Press pathetic letters from gentlemen asking for instruction and help in filling up their voting-papers. Such a one has appeared within the last fortnight, reiterating the same old complaint in the following terms:—

The time will soon arrive again when the members of the Institute will have to elect their representatives on the Council and various Committees for the coming year, and bearing in mind the difficulties of the system, I am at present hesitating as to whether I venture to inquire if something cannot be done to assist him in his selection.

I think I am safe in saying that to most members many of the candidates—particularly new ones—are comparatively, if not quite, unknown; or, if known, their ability, work, and experience are not. It must be remembered that the architect gains his knowledge of his professional fellows chiefly by means of the building journals and the various particulars of buildings they publish. Now, there are many men of large practice whose names never seem to get into print and whose drawings are never published; it follows then that these men are probably unknown to their brother architects, and when, as sometimes happens, they are listed among the candidates, they invariably fail to receive sufficient support for election, notwithstanding that their experience is far greater than many of these who do manage to gain a seat.

May I, Sir, offer the suggestion to distressed voters that the careful and regular perusal of the accounts of business meetings published in the R.I.B.A. Journal would prove a much greater help in selecting candidates than the mere haphazard voting for a member because he happens to have a penchant for seeing his work continuously illustrated in the professional journals?

I think that many, both on the Council and off, must agree with the entire truthfulness of the statement above quoted, and I am convinced it is a matter which should be inquired into with a view to adopting some procedure to more satisfactorily meet the needs of these progressive days.

I believe there exists an almost unanimous feeling against individual canvassing in a body such as ours; but this does not prove the case pro or contra. In the case of Parliamentary candidates—and I believe I am right in saying, in other of the professions (closed and otherwise)—canvassing is adopted as a matter of course, without

(where everyone is on the same footing) any great harm ensuing. Personally speaking, I can see very little difference between canvassing openly and canvassing by such means as writing letters to the professional Press just previous to the elections by gentlemen who are candidates for the same. The professional Press of the last few weeks provides some delightful instances of what can be done in this way.

The writer of this letter is also a candidate, but in his case he desires to carefully retain his anonymity, and therefore signs himself—

MEMBER, R.I.B.A.

THE FIRST LIGHT AND AIR CASE ON RECORD.

SIR,—The following, extracted from Finlay's “History of the Byzantine Empire,” must surely be the first “light and air case” on record.

“A poor widow accused Petronas, the Emperor's brother-in-law, an officer of talents and courage, of having, in violation of law, raised his house so high as to render hers almost insupportable. For want of light and air.” Theophilus ordered the grievance to be redressed; but the complaint was subsequently reiterated, and the Emperor discovered that his brother-in-law had disobeyed his decision. He now gave orders that the newly-built house should be levelled to the ground, and condemned Petronas to be scourged in the public highway.

One would imagine that the drastic nature of the punishment must have had a wholesome influence in preventing the infringement of this by-law.

Theophilus, the Emperor referred to, reigned from A.D. 829 to 842—Yours, etc.,

DUNCAN W. CLARK.

3, High street, Colchester

THE DECADENCE OF BRITISH ARCHITECTURE.

SIR,—When I wrote the letter which appeared in the BUILDING NEWS of May 10, I had, of course, no idea that what I was advocating had already been embodied “as a definite policy of the Architectural Association Schools in the future”; or that “the Council of the Royal Academy” had “extended practical encouragement to the Architectural Association students who are qualified to go to the Royal Academy.”

I am extremely glad to have thus induced the Architectural Association officially to make public such good news, and also to form the conviction that the classes will be curtailed at Tuford-street from four to three years. The pressure on the classroom accommodation will thus be modified and the standard of efficiency will be raised from the art side, seeing that before students can go forward to the Royal Academy School their qualifications will be tested. Those who fail must be relegated to avocations more congenial to their personal capacities and talents. What alone will be a great gain to all concerned, I can only express my gratification at this exceedingly satisfactory reply from the hon. secretary of the Architectural Association, Mr. H. Austen Hall.

On the other hand, I must venture to urge, as I have already suggested, that the Academy should see what developments can be made towards the more efficient equipment of their architectural school, and, speaking with all reservation, I can only form my idea of this necessity from the results year by year, as shown by the Students' Exhibition of designs at Burlington House. However, I have no doubt, with this forthcoming augmentation of technically efficient students from Westminster, that suitable and corresponding improvements will be seen to. We can really entertain no doubt that the quality of the personal association and intimate experience on all these matters of Sir Austen Webb and Professor Reginald Blomfield, while I am sure that the other architect “members”—Mr. T. G. Jackson (the treasurer), Mr. John Belcher, Sir Ernest George, and Mr. Ernest Newton—will aid to the full with their know-

of the old offices, which will be ultimately merged on small occasions by many of the Acad my like my friend Sir George Frampton, who knew so fully how to use the advance of architectural science, and who was studied in Paris and London.

I am indebted to Mr. Hall for what he has said about the future of the Royal Architectural Museum, and I sincerely second the expressed intention of the Council to erect and complete the collection with classical and Renaissance examples. In my time I tried to do that, but our efforts were not sufficient support. Now that the houses at Westminster and Piccadilly are so practically affiliated, this may, I hope, be possible, and certainly the unique collection at Tuffen-street, ought to prove most useful than ever. I am, etc.

MAURICE B. ADAMS.

CLARENDON HOUSE, PICCADILLY.

SIR, In reply to your correspondent's letter in your last issue, an elevational perspective of Clarendon House is given in "London Illustrated," published by Robert Wilkinson, of Finchchurch-street, 1819. The mansion was sold by Clarendon to George Monk, the Duke of Albemarle, from whom it derived the denomination of "Albemarle House"; but the Duke died on January 5, 1690, when the property fell for a brief time into the possession of the Duke of Ormond, who, on his way to this place in 1670, was outraged by Colonel Blood, who dragged his Grace out of his coach, intending to hang the Duke at Tyburn. Albemarle had, however, sold the property before he died, and "Albemarle Buildings," as they were called, were built in the streets subsequently formed on the property. (See "Styries Show," ed. 1720.) Yours, etc.

U.S.A.

Mr. B. Batsford has lent us a copy of Wilkinson's book, and we shall reproduce the plate shortly.—Ed. "B.N."

INCREMENT DUTY.

SIR,—With reference to my letter to your paper regarding "Increment Duty," I have received the enclosed letter, to which I have joined a copy of my reply.—Yours, etc.

J. H. KERNER-GREENWOOD.

KING'S LYNN.

(COPY.)

King's Lynn, May 11, 1912.

J. H. Kerner-Greenwood, Esq., King's Lynn.
DEAR SIR, In reference to your letter to my trade paper re Increment Duty, I can't quite understand P. In your third paragraph you say under those conditions no Increment Duty is payable. How is it possible for a house to be bought for 4,100 and sold for 4,000 without the value of the site being increased?

What is the best means to distinguish the two cases?
At present on the face will be greatly appreciated.

(COPY OF REPLY.)

King's Lynn, May 14, 1912.

DEAR SIR, Yours of the 14th inst. to hand, for which I thank you. Builders every day are taking property under cost, and I have many times known a man's house under cost in order to get ready money. If I bought a house for £100, and a few days later sold it for £100, probably I should be sorry to wait for it for its special use, as it was not worth to me, it would not necessarily mean that the value had increased, but that I had not been in buying cheaply and selling at a profit. The value is not altered. It might have been either a rise or a fall, but I have known houses sold at a profit and sold at a loss, but that after the sale of the property. If it were done in a day, it would not be considered to be the middle class. But I think you will be able to give your naturally.

J. H. KERNER-GREENWOOD.

DWELLING HOUSES FOR THE WORKING CLASSES IN WINNIPEG.

SIR, During the past few years the municipal authorities and the provincial government have been trying to draft a modern housing act, but I think it is not yet matured, and in the meantime no certain steps are being taken to give a direct effect to the working classes and gloriously breaking down the barrier of law now in force in

this city. Will you allow me space to briefly describe the class of building I have inspected and that is now in course of construction in this city? To form a basement they simply dig a hole near the centre of the lot, and the walls consist simply of clay and soil. The stone walling is laid on the surface and reduced to about six inches at the top, where the wall plates are laid. A very weak runner is placed from back to front on which the floor joists are laid. This runner, being so weak, is supported by means of two props, each 2 in. thick, resting on the top of the soil, black soil. The floor joists are not梁 filled with stone or brick but in lime mortar to keep out the frost, but simply a very inferior board nailed on the ends of the joists. The whole framing is weak and far between the standards, but they are boarded over, the inside plastered, the outside painted, and the whole erection is sold to families of the working classes as suitable dwelling houses, erected under the official inspection of the city council.

These so-called dwelling houses are not fit for cattle to winter in, and to allow such builders to erect and sell such buildings to families of the working classes shows a most deplorable state of affairs in this city.

We have a City Planning Commission. What are they doing to help the majority of the people? We have an architectural association that represents a section of the architects in this city. What are the members of this association doing to improve this deplorable state of affairs? Nothing! We have a charity association. Are they trying to protect the working classes against such daily reprehensible conduct, to relieve the distress of the winter months?

It is almost impossible to keep such houses warm in the winter season. The pipes freeze up and the health department prosecutes the poor families in the winter season because they have not the drains and pipes in good working order. What are the labour leaders in the city council doing? Are they afraid to speak to protect the classes they are paid to protect?

WILLIAM BEUCE, Architect.

Winnipeg, May 6, 1912.

The tender submitted by Messrs. Streeter and Son, of Croydon, has been accepted for decoration, etc., to "The Quarries," Croydon, for Mr. J. H. Rosenthal. The architects are Messrs. George Baines and Son, 5, Clement's-inn, Strand, W.C.

Battersea Borough Council have a communication from the clerk of the London County Council on Wednesday, stating that the Parks and Open Spaces Committee of the County Council had decided to recommend the Council to contribute £5,000, or one-half the sum required, to the fund for the purchase of 20 acres of land adjoining the Royal Patriotic Schools at Wandsworth Common. The local acquisition fund, which includes grants from the borough councils of Wandsworth and Battersea, now amounts to about £5,400.

The annual meeting of the National Art Collections Fund was held on Wednesday at Burlington House, Lord Balcarras, M.P., presiding. Lord Balcarras announced that the famous group of statues by Rodin ("The Barbers of Calvary") would shortly be placed upon a site which the Government had given on the Midland extension between the Tate Gallery and the Houses of Parliament. Correcting a popular misconception, he explained that the group is not a copy of that at Calvary, but an original and magnificent specimen of Rodin's work, actually finished by the great sculptor himself. Mr. Balfour, in moving the adoption of the annual report, observed that the £5,000 contribution given by the country to the National Gallery for the purchase of new works of art, which might not have been ungenerous or inadequate 20, 30, 40, or 50 years ago, was now absolutely ludicrous in view of the prices actually, annually, fetched by the great masterpieces in the markets of the world. The cost of the acquisition of art treasures for the nation should not be left entirely to the taxpayer. He suggested that the Government might be approached in certain cases to provide funds for the purchase of masterpieces which private enterprise could not secure. The Earl of Plymouth, who seconded, acknowledged on behalf of the trustees of the National Gallery the invaluable help which they had received in the Fund.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

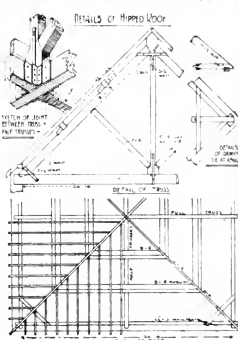
Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

The right to withhold the prize in the event of no reply being received worthy of it is reserved to the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. James Brounley, Moor Villa, Lower Baines-road, Fulwood, near Preston.

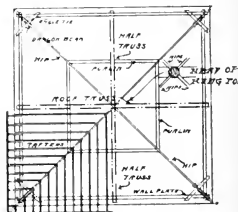
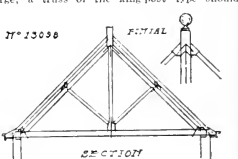
REPLIES.

110598.—TIMBER ROOF.—The construction of this hipped roof—which is to be of timber—is carried out in the usual manner, by placing one king-post truss



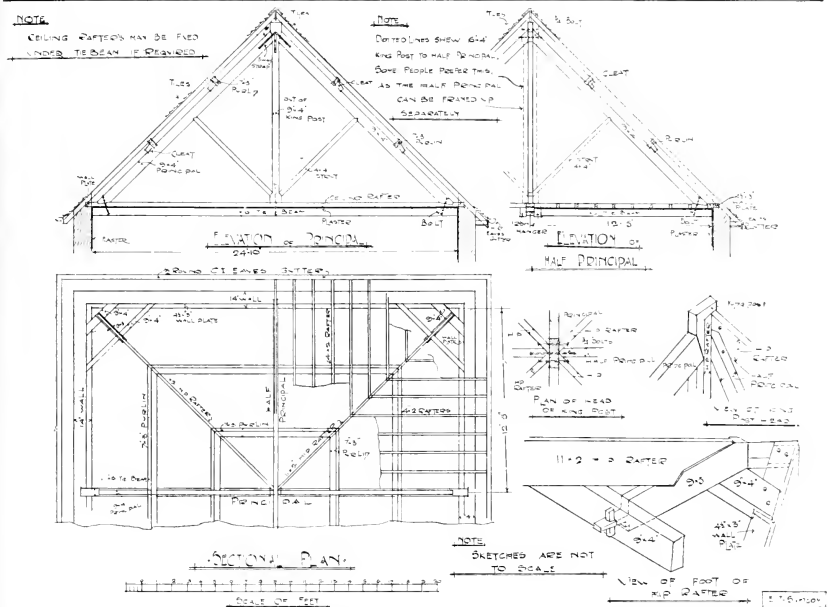
across the full width, and fixing half-trusses at right angles to carry the other sides. The half-trusses are supported by plates bolted to the king-post truss. Shoulder quick decide to place two trusses on each side, he must construct two full queen-post trusses and four half-king-post trusses.—Frank Wilson, 225, Nottingham-street, Sheffield.

110608.—TIMBER ROOF.—As the span is fairly large, a truss of the king-post type should be



7th 13098

used to carry the purlins, with two similar, but half, trusses on the other sides, securely strapped and bolted to the main truss. The head of the king-post had better be finished externally above the tops of the principal rafters (see sketch), so as to form a flat face for top of the hips—in fact, a sort



of pendant or hanging post, similar to the more elaborate fan vaulting. The hips should also be framed into a dragon beam, and not on to the wall-plates, which should have the angle necessary to the dragon beam notched and well spiked, so as to counteract the twist of the hips. The actual pitch

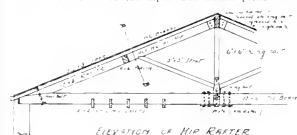
(1908).—**TIMBER ROOF**.—I have used the diagonal truss roof, as illustrated in the enclosed sketch, over a room somewhat similar to the one in the question asked, and consider it makes a strong and economical job. The hips require to be deep enough to take both spars and purlins, which are then

(1908).—**TIMBER ROOF**.—In answer to "JACK'S" query re roof-truss for room 24 ft. per square, I think the enclosed drawing will be found suitable. The roof should not be less than 45 deg. pitch. In other details the drawing will explain itself.—L. J. Symcox, Wood-ale, Stone-road, Starch.

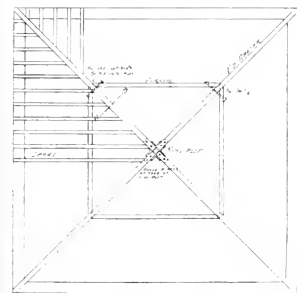
(1909).—**FRICTION ON DRAIN-PIPES, AND ENTRAPPING OF DISCONNECTOR**.—A few remarks in answer to this interesting query. In medium-sized domestic work, where there is a regular flow in the pipes, a velocity of 4 ft. per second is considered very satisfactory. The following table gives the minimum rate of inclination for various size pipes at required velocities:—

Diam. of Pipe.	Rate of Inclination of Velocity per Second.
4 in.	1 in 80
6 in.	1 in 125
8 in.	1 in 140
10 in.	1 in 150

This table is worked on a formula which is a combination of Eytewin's and Bartholomew's, and too lengthy for explanation here. We note by this that a 4 in. pipe will give us a 4 ft.-per-second velocity at an inclination of 1 in 80, so that, as we suppose that one inclination shall be 1 in 80, we shall not quite the required velocity with a 4 in. pipe. The greatest velocity is when a pipe is flowing thirteen-sixteenths full, and the velocity decreases when fifteen-sixteenths full. There is not sufficient information given to compute the amount of water passing through the pipes, for it is stated whether the rain-water is connected to the sewers, or if it is not, so it is safe to say that there will not be a constant or great rush of water for any continued time. The gradients are very varied, so that what will suit one will not suit the other. In the flat gradient we want a good velocity, so should use a 6 in. pipe but not in the steeper gradient, where we require to retard the velocity, as there is a tendency for the liquids to flow away and leave the solids to become a nuisance in the pipe. Then, again, we want a sufficient flow throughout to cleanse the pipes. Taking all this into consideration, I should use a 4 in. pipe for the chambers of Dorsetshire manufacture, in thick, with 1 in. sockets. The friction of soil and water passing through a highly-glazed soil pipe is so minute as to be of no detriment to the pipe. With regard to the latter part of this query, the volume of water from the bath passing through the long length of steep-gradient pipes would certainly first force and then pull the water out of the disconnector tray, and so open the drain to the sewer, and possibly force air out of the chambers. Generally, I should suggest the following:—An inspection chamber to be placed at all changes of direction and gradient, with air-tight covers and grease-traps, a 4 in. ventilating pipe to be carried up above the eaves of the house at the head of the drain, with perfect access to the wind, any vertical



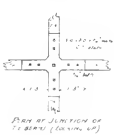
ELEVATION OF HIP RAFTER



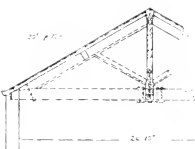
PLAN



SECTION AB



PLAN OF JUNCTION OF BEAMS (LOOKING UP)



SECTION C

of the roof will depend on the material used for the covering. In the case of slates, lead hips would doubtless be best, and for this purpose made tiles; in each case a lead-covered final will be necessary, something like sketch. If stone tiles are used, sawn stone hip tiles and stone final would be more appropriate.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

notched and bolted into them as shown. In the centre the tie-beams are halved and strengthened by means of an iron plate on the under side, (see detail). The king-post has to face four sides, and the workmanship is good, the iron angle-plates shown on the drawing are not needed.—J. C. Treble, 11, Seelough-road, Newchurch, near Manchester.

Engineering Notes.

IRRIGATION SCHEMES IN MESOPOTAMIA. The Turkish Ministry of Public Works recently visited the headwaters of the construction of irrigation works in Mesopotamia, says a *Times* correspondent. The works were divided into two groups, the first of which comprises the new Hindieh barrage and protective works against floods of the Euphrates and Tigris, while the second includes the construction of the Fudhla barrage, with two systems of canals connected on the right bank of the Tigris and the other on the left bank of the Euphrates. Two British firms—namely, Messrs. Pearson and Son, Limited, and Sir John Jackson, Limited, tendered. The former offered to construct the works of the first group in four years for £12,380,000, and the works of the second group for £11,500,000 in five years; but Sir John Jackson's tenders were for £12,735,000 and five years, and £11,554,000 and five and a half years respectively. Messrs. Pearson having made reservations in their final tender which were calculated to raise the price, and were not in conformity with the conditions imposed by the Government, the commissions responsible for the provisional adjudication rejected their tender, but did not recommend the definite acceptance of Sir John Jackson's offer, the latter being the price too high.

Our Illustrations.

LLOYDS BANK: NEW PREMISES
KING STREET AND CROSS STREET,
MANCHESTER.

One of our double-page plates to-day shows a view of this new building, which is now being commenced on the site of the old Reference Library at Manchester. The bank entrance, as seen from the adjoining street, is on the upper one of the two in King-street, and the banking chamber will occupy more than half the total ground-floor area. The lower entrance in King-street is the general office entrance. Above the ground floor there are a mezzanine and four other floors, except over the bank portion, where there is no mezzanine floor. The extra height given to the bank, the mezzanine and the three frontages will be faced with Portland stone. Aberdeen granite forming the plinth. Steel and reinforced concrete construction are employed throughout. The banking chamber will be lined with marble. The general contractors are Messrs. Blake, Ltd., of London, who have recently carried out the British Museum extensions. The masonry is let to a local firm, at whose yard all the stone will be worked. This applies to other sub-contracts such as plumbing, brickwork, steelwork, etc. The architects are Messrs. Chas. Heathcote and Sons, of Manchester and London. We shall give some details of this building next week.

NEW PREMISES FOR MESSRS. H. J. NICOLL AND CO. LTD., 114, REGENT STREET, S.W.

The accompanying plan shows the extent of these buildings, which have frontages in Warwick-street as well as in Regent-street, where Messrs. H. J. Nicoll and Co., Ltd.'s premises are located, with a frontage of 75 feet, as illustrated by an plan, the rear being 160 ft. The whole of the site is six floors above the ground level, the total height being about 35 ft. The construction is of the steel frame type, with seven stanchions spaced along the front, accommodating the architectural lay-out of the elevation. The maximum span is 25 ft. internally, so that compound girders are obviated. The grillage foundations are provided for the stanchions, the largest being 7 ft. square, and there are nearly forty grillages over the entire site. The floors are calculated to carry a live load of 112 lb. or 8 lb. dead weight. The largest beams are 20 in. by 7½ in., the filling-in joists being 7 in. by 1 in., spaced 3 ft. apart in the clear. Excellent accommodation is furnished

and descriptions of baths given from time to time in the past. I have to-day to say that issue of September 20, 1901, before me, which contains an illustration of a capital and cheap bath—Bath No. 1. I quoted it at that up, and describe here before and since.

REBUILT PRESERVATION OF CORRUGATED IRON. So. In my experience, recent work is of little use on advanced iron. The cheap thing is to get it replaced as long as it is still called "renewed." There used to be a paint called "Bayon's Graphite Paint," which was very good but very dear. I have not seen it lately. If I put corrugated iron, I always defer it first with a wash of 1 part of chloride of copper, 1 part of nitric acid, and 1 part of water, and then I solve in 4 parts water, and then add 1 part of commercial hydrochloric acid. When dry, any good paint will stick. I will then use the same.

[1902.] BOND, "G. M." had better consult his copy of the by-laws for the district in which he wishes to erect the houses, etc., and note the prescribed penalties. In many big towns, such as Bristol, it is now the custom to require the completion of the roads, paths, etc., before any buildings are erected, and is really a wise precaution, and the alternative offered some rather curious penalties are named.—K. B. Read, Lecturer on Building Construction, Gloucester Technical Schools.

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A receiving order has been made in the case of Lionel Littlewood, Ashford, near Epsom, builder and architect.

The death is announced of Mr. Albert E. Edwards, surveyor's assistant and local supervisor under the Bath Corporation.

The River Corporation's scheme to harness the River Trent for navigation purposes has been discussed at a Local Government Board inquiry on Friday, when the local waterworks company offered much opposition.

The Hendon Urban District Council have received an intimation from the Local Government Board of its willingness to sanction a loan of £12,403 for the erection of a school for 1,000 children on the Hampstead Garden Suburb Estate.

Lady Wantage opened the other day the new buildings of the Royal Berks Hospital, which have been erected at a cost of £224,000. She also opened a new children's ward, costing £6,000, of the same buildings. Berkeleys' memorial to King Edward.

The housing sub-committee of Exeter City Council recommended the purchase of the Exeter Nursery, St. Thomas, nine acres in extent, for £2,695, as a site upon which to erect houses for persons dispossessed by the Paul street and Brixton railway widening scheme.

An application by the South Shields Corporation for a loan of £6,655 for paying work was the subject of an inquiry at South Shields on Monday, by Mr. R. H. Hickok, M.P. C.E., a Local Government Board Inspector. The Corporation's plan was to borrow the money for repaving eight old streets. It was proposed that they should be paved with granite sets on concrete foundations.

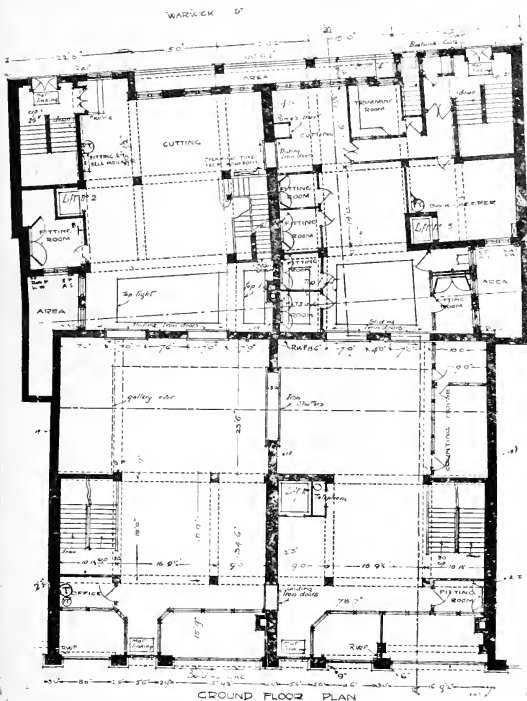
A great deal of activity exists in the building world both in the city of Bahia and suburbs. In Bahia, the houses are being pulled down with a view to the construction of an avenue of modern buildings. There is a growing demand for iron beams and girders, as well as for cement and building materials of all kinds. In the suburbs, in request if the houses are on the lines in directed.

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RECENT STREET

PREMISES, MESSRS. H. AND J. NICOLL, REGENT STREET.

by varied showrooms and fitting rooms. The ground-floor has a gallery at the first floor level. Owing to the large cubical extent of the premises, it was necessary to introduce party-walls with iron doors, to divide same into four buildings, each of which has a staircase extending the full height of the premises. The front to Regent-street is carried out in Portland stone, and the roofs are slated. The treatment appropriately indicates the business character of the building, which is well adapted to the exigencies of commercial requirements, making at the same time a worthy and broadly handled architectural addition to Regent-street. Messrs. Holland and Hannen were the builders, and the architect is Mr. Henry Tanner, F.R.I.B.A., of Carlton-chambers, S.W.

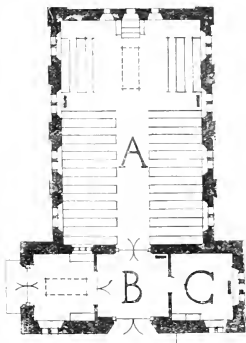
CEMETERY BUILDINGS, WHITLEY BAY, NORTHUMBERLAND.

This design was placed first in a recent competition by the assessor, Mr. Alfred W. S. Cross, M.A. As the sum named in the conditions for the whole of the works, including boundary walls, was £4,000, and it was further stipulated in the conditions that they should be executed in granite, an endeavour has been made to obtain a good effect by simple means. The site being in an exposed position on the coast, special shelters have been provided at the entrance-gates. The materials proposed are granite-faced walls, roofs covered with Westmoreland peggles, and all exterior joinery, together

with the furnishing of chapel, in oak. The accompanying plan illustrates in detail the two buildings. Messrs. Oliver, Leeson, and Sons, of Newcastle, are the architects. The drawing here reproduced is now on view in the Royal Academy Exhibition.

ST. JOSEPH'S CHURCH, ALDERSHOT.

This elevation of the exterior and perspective of the interior are hung at the Royal Academy this year. They are of a design for the above church, which was placed second in competition. The site is a very small one, between Queen's-road and Princess-street,



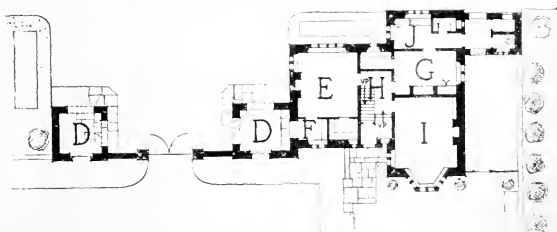
CEMETERY BUILDINGS, WHITLEY BAY, NORTHUMBERLAND.

but on high ground falling towards the S.E. The design is arranged to get as much seating accommodation as possible, the sacristy being provided in the crypt under the altar. The chapels are planned so that the seats in them can be used for services in the main church without rearrangement. It was intended to face the building externally and internally with 2in. brown bricks, to be made locally. The stonework was to have been Portland, and the domes concrete. The apse would have stood out prominently at the junction of the two streets, and would have shown from any part of the town. Messrs. H. R. and B. A. Poulter are the architects, from Camberley, Surrey.

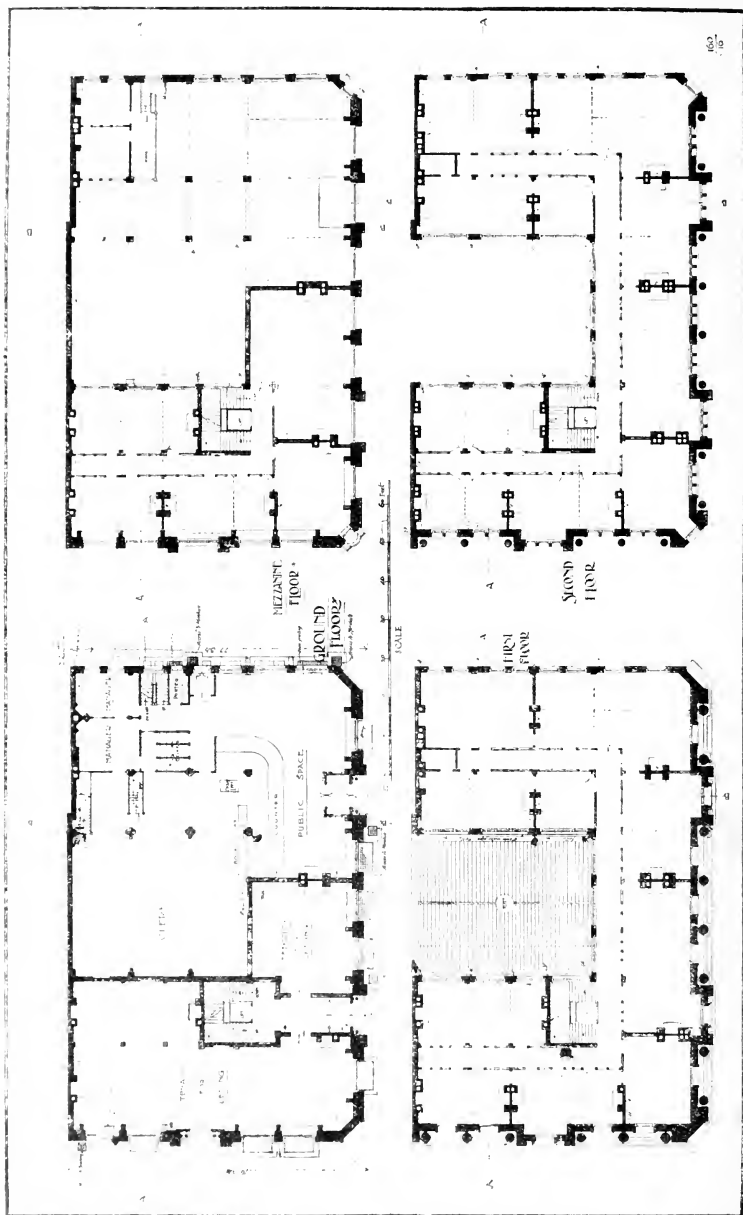
Mr. Asher has been appointed to the dual position of highways and sanitary surveyor to the Acheam Rural District Council, at a salary of £260, rising to £300 per annum, in succession to Mr. T. Fortune, who has resigned after 21 years' service.

Mr. Henry Drew, of Peabody, Exeter, died late on Thursday night in his 86th year. Mr. Drew was a member of an old Devon family, who were stewards of the Devon and Pramore estates. He was surveyor and valuer for the London and South-Western Railway Company.

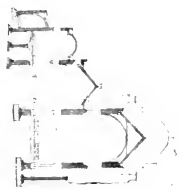
Sir A. B. Kempe was granted at the London County Court a petition by the rectory and churchwardens of St. Bartholomew the Great, Smithfield, for a faculty to sanction an exchange of land and light in the interest of that ancient City church. Two pieces of land adjoining the south side of the church now occupied by Pope's Cottages, will be acquired in exchange for rights of way over a passage known as Cockerell's Buildings, and rights of light over the south churchyard. The object of the arrangement is to remove from the church a source of danger from fire caused by the contiguity of the present cottages, and to prevent large warehouses being built against the church in the future. When the cottages are pulled down three Norman buttresses will be exposed to view.



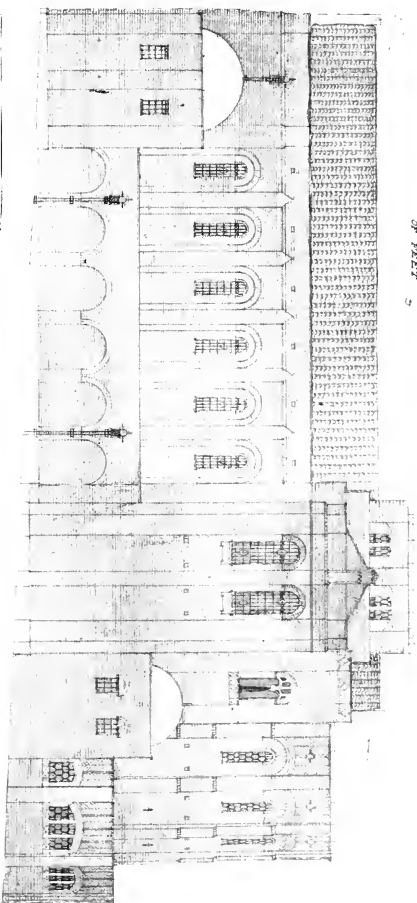
CEMETERY BUILDINGS, WHITLEY BAY, NORTHUMBERLAND.



LLOYDS BANK: NEW PREMISES, KING STREET AND CROSS STREET, MANCHESTER.—Messrs. CHARLES HEATHCOTE AND SONS, Architects.

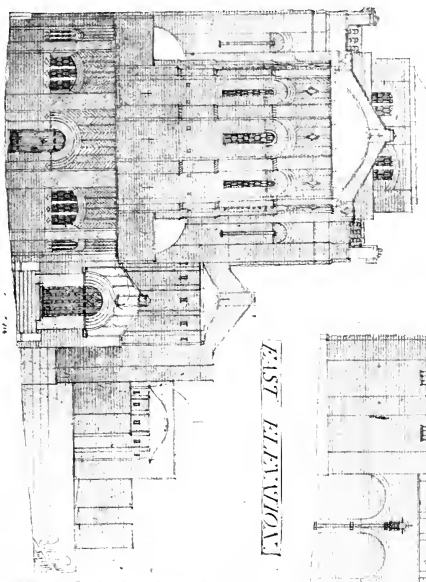


SCALE
OF FEET
0 10 20 30 40 50



EAST ELEVATION.

SOUTH ELEVATION.



INTERIOR VIEW



ST. JOSEPH'S CHURCH, ALDERSHOT.—Design by Messrs. H. R. and R. A. Poole, Architects.

Building Intelligence.

[illegible]

MIDDLEBROUGH. The new free library at Middlebrough has been formally opened. It has been built from plans by Messrs. Russell and Cooper, of Gray's Inn-square, W.C., selected in competition by the assessor, Mr. J. S. Gibson. The builder is Mr. Henry McNaughton, of Middlebrough, and Mr. J. G. Dackworth was the clerk of works. The building is arranged with access to the public to all departments from the entrance of staircase hall, except the news room, which has a separate entrance from Grange road. The principal entrance gives access to the landing, reference, law, and patents libraries, and to the ladies' reading-room; the secondary entrance, on the right, gives access to the lending library. The lending library is placed to the left of the principal entrance, and accommodates 40,000 books in gilt stacks. The boys' and girls' reading-rooms are separated from each other by screens. The ladies' reading room is placed on the right of the principal entrance. The reference and law libraries are placed together on the first floor. The whole of the furniture has been designed by Mr. Edwin Cooper, F.R.I.B.A.

PORTLAND HEAD—The new chapel of the National Nautical School was dedicated last week. It has been erected from the designs of Mr. Edward Gabriel, who was also architect for the commanding range of school buildings familiar to everyone who goes up and down the Bristol Channel. The chapel is a fine example of the transitional period of the 16th century, and is built of stone from the Hartham Park and Four Hill Quarries. It is cruciform in plan; the nave with narthex forms the main western arm, and the sanctuary the eastern arm, while there are transepts north and south. The choir is at the north end, and has a fine architectural feature. The choir vestry (with heating chamber underneath) adjoins the north transept.

STRAND, W.C.—The palatial building erected in 1902-5 at the junction of the Strand and the western horn of Aldwych for the Gaiety Restaurant Co., in the Florentine Renaissance style, from the designs of Messrs. Runtz and Ford, in collaboration with Mr. Norman Slaw, R.A., not only has been converted into a theatre, but the original plan has been altered in March last by the ground landlords, the London County Council, to Marconi's Wireless Telegraph Company, who are now in occupation, the necessary internal alterations having been completed. The main entrance hall of the Strand opens into a waiting room, panelled in oak, and a magnificent staircase flows into an apartment measuring 60ft. by 80ft. and fitted with desks, is allocated to the transfer department. A balcony round this room is occupied by dictaphone machines and their operators, and from it an electric lift for the conveyance of dictaphone records runs to each of the eight floors. The first floor has a large hall, which is open day and night for the reception of matinees, and from the operators' room connected to it a private wire leads directly to Clifden, so that "transmitted" messages can immediately be dictated. On the same floor, the central staircase leads to the balcony, which is elevated above the building. The grand staircase, with its 64 steps, leads to the first floor, where the managing director's room, an apart-

men, furnished and decorated in the Georgian style with manager's room and accommodation for private secretaries adjoining. The second floor contains the secretary's and accountant's departments and the board room, the latter occupying what was previously the lower part of the Masonic Temple. The accountant's department, which is built by itself, was formerly a separate building, was moved up to the engineering and technical staff, while on the fourth are Mr. Marconi's private room, and the patent, field station, stationery, and publicity departments. The traffic manager and his staff occupy the fifth floor, the sixth is partially reserved for the house-keeper, and the seventh provides a workshop, a room for making prints of the drawing office tracings, a photographic dark room, a drawing office, and store room. The drawing office will eventually be placed on the roof for demonstration purposes. Three lifts, made by Messrs. Waygood & Co., serve the various floors, and for intercommunication between the different rooms there is a system of telephones with nearly 100 extensions. The architects were Messrs. Dunn and Watson, and the surveyors Messrs. T. M. Deacon, Son, and Aldiscott. Messrs. Waygood & Co. have made the joistery and mahogany screens. We illustrated the building by perspective and plans in our issue of Sept. 26, 1902.

SHAWLANDS.—The memorial stone of the new Shawlands United Free Church was laid on the 27th ult. The church, which is seated for about 1,000 persons, has been planned on broad lines, length of nave being avoided. The whole of the pews in area are circled, radiating from the pulpit so as to give every person a direct line of vision towards the pulpit. A special feature of the church is that the gallery is supported by buttresses, so that there are no columns to obstruct the vision. The pulpit end has been designed for an organ, the manual to be in front of the choir platform, where there is accommodation for a choir of thirty-seven persons. A separate platform is provided for Communion services, with accommodation for minister and assistants. A large hall is provided under the church. The walls are of red stone with toolled dressings and rock-faced rubble. The roofs will be slated with green slates and red ridge tiles. The church will have an open circular roof of combined steel and wood construction, the ceiling being lined with wood and divided into panels with moulded ribs. The style of architecture is Late Gothic. The architect and contractor for the work are: Mason work, McLeod and Campbell; joiner work, Anderson and Henderson, Ltd.; steel work, John Burdon and Sons; plumber work, John Paterson and Co.; plaster work, Wemyss and Livingstone; slater work, W. and D. Marler; tile and terrazzo work, Haddon Forbes and Co.; glazing work, James McKinnon and Co.; measurer, George B. Walker, J.M. The architects are Messrs. Miller and Black, F.R.I.B.A., I.A. of 58, Renfield-street Glasgow.

The Local Government Board have sanctioned the Doncaster Corporation borrowing £25,400 for the purpose of gas works extensions, including a new holder and condenser, mains, and meters.

The death took place on Saturday of Mr. Samuel Hearn, who in 1903 retired from the post of superintendent of the Birmingham Public Parks, having at that time completed his seventieth year and thirty years' service under the corporation.

At Clay Cross on Monday night Mr. Edgar Dudley, a Local Government Board Inspector, held an inquiry into an application by the Clay Cross Urban District Council for sanction to borrow £1,150 for the purchase of land at Woodthorpe for allotments and for a refuse tip.

The Staffordshire County Council adopted, after some discussion at their last meeting, a recommendation of the Main Roads and Bridges Committee to appoint Mr. James Moncur, jun. (son of the county surveyor), as assistant county bridge-master, at a salary of £200 per annum, with a travelling allowance at the rate of £60 per annum.

PROFESSIONAL AND TRADE SOCIETIES

PLACEMENTS AMONG BIRMINGHAM PLUMBERS: LECTURES AND PRIZES ABANDONED.—The annual meeting of the Birmingham and District Council of the National Registration of Plumbers was held at the Council House on Thursday evening in last week. Mr. E. Antony Lees, president, reported that in pursuance of the scheme for encouraging instruction of plumbing students prizes were awarded in the technical classes in the district. The sum of £18 10s. had been distributed in 1911 among the education committees of Birmingham, Burton-on-Trent, Walsley, Coventry and Worcester. The council regretted that the state of their funds would not permit their continuing to offer these prizes. The lectures given under the auspices of the council, while successful as regards attendance and interest, yielded no results in the year 1912, and the council regretted that the state of the funds would not permit the experiment to be repeated. The statement of accounts showed that the expenditure had necessitated the capital account of £54 being closed, and the amount transferred to the general account. The balance of £12 10s. 6d. was carried forward. The report and accounts were adopted, and the officers were re-elected.

BRISTOL L SOCIETY OF ANTI-QUARIES.—The members of this society made their first motor excursion to the season on Saturday, the first halt being at Westbury-on-Trym, where an inspection was made of the church. The Rev. Dr. H. J. Wilkins, the vicar, gave an outline of the history of the church, as well as pointing out the most interesting features of the building. It was found that when Bristol was for the most part an un drained swamp, Westbury was a place of light and learning. The earliest church there was a monastic one, probably built about 715 or 718. In 961 came the Benedictine monks, and it was Westbury's proud boast that there was the first house of the Benedictines in England. The church was enlarged and made collegiate by the Bishop Gifford in 1288, and from that time the church had a dean and canons. The college was rebuilt in 1447 by Bishop Carpenter, and removed a little distance away from the original one, of which nothing remained. Of the college building the Bishop Carpenter left the chief portion. In 1473, Westbury Church was enlarged in 1473, and made the cathedral church, Bristol Cathedral being then St. Augustine's Abbey. From outside, the church was much as Carpenter left it. Carpenter, who styled himself Bishop of Worcester and Westbury, was buried in the little crypt at the west end. Opposite the west door there was a tomb carved for his friend, Canynge, who, however, was not buried there, but at Redcliff. The bishop's tomb had been since sadly desecrated. In 1529 Henry VIII. stripped Westbury. Prince Rupert fired the college buildings in 1643 on his way to Bristol, in case they might become a stronghold of the Puritans. In 1851 the church was partially restored. Afterwards the party visited the college tower, where Mr. A. W. Little read some interesting notes on the history of the building, of which so little now remains. The members then proceeded to Henbury, where the vicar, the Rev. P. W. Way, also read a series of papers. The church, which was restored by the older Rickman ninety years ago with sad results. It was again restored in 1878 by the late G. E. Street, R.A.

BRITISH ARCHÆOLOGICAL ASSOCIATION AT GLOUCESTER.—The Council of the British Archaeological Association has decided to hold the annual congress in Gloucester from June 24 to 29. On the first afternoon a visit will be paid to Gloucester Cathedral, where an address will be delivered by the dean, and in the evening there will be a reception by the Mayor of Gloucester at the Guildhall, and the delivery of the presidential address by Mr. Charles E. Keyser. The following days will be spent in the inspection of places of historic interest in Gloucester city, and in visits to such places

FAMILY LITIGATION OVER PLUMBER'S ESTATE.—(Peacock v. Peacock).—A case in which the litigants were brothers was heard in the Lancashire Chancery Court at Manchester on Monday. Mr. Abbott appeared in support of a motion to commit to prison the defendant, Mr. Walter P. Peacock, or in the alternative, to give the plaintiff, Mr. W. F. Peacock, a writ of habeas corpus, the defendant for contempt in wrongfully failing to hand over to Mr. W. F. Peacock, chartered accountant, Manchester, the receiver of the outstanding personal estate of the late Mr. J. Peacock, who at the time of his

**HEAVY FAILURE OF BUILDERS AND
BRICKMAKER LIABILITIES** £1,000,000. A meeting of the creditors of John Cathles Hill, builder and brick manufacturer, Arkway road, Bingley, and Old Fenton, near Peterborough, was held on Tuesday, Mr. G. W. Chapman, official receiver presiding. The creditors' statement of affairs was submitted, but it was understood that the claims of the unsecured creditors amounted to between £80,000 and £100,000, in addition to which the debitor had a large number of debited claims, amounting to about £1,000,000. April 19th, the date of the debitor's bankruptcy, was due to the equities of redemption in his numerous properties, the realisation of which the debitor thought was uncertain, the only assets declared were £10,000 in cash. The official receiver said the debitor had stated that he began business as a speculative builder at Tottenham in 1881 with a capital of £150, and that he had since then been successful, and that he had therefore been financed by collectors and insurance companies. In 1887 he began business as a brick manufacturer. Both businesses would have been successful, but for the depreciation of his properties and the practical stoppage of the

GLAZED BRICKS.*

RED GLAZES, (PER 1,000.)		White, Ivory, and Salt Glazed.		Buff and Cream Colours.		Second Colours.	
Stretchers—	Ends—	Stretchers—	Ends—	Stretchers—	Ends—	Stretchers—	Ends—
410 17 6	817 7 6	413 7 6	817 7 6	410 17 6	817 7 6	410 17 6	817 7 6
10 7 6	817 7 6	11 17 6	16 17 6	10 7 6	817 7 6	10 7 6	817 7 6
Quoins, Bullnoses, and 4th. Flats—	10 17 6	14 7 6	14 7 6	10 17 6	14 7 6	10 17 6	14 7 6
Double Stretchers—	14 7 6	14 7 6	16 17 6	16 17 6	16 17 6	16 17 6	16 17 6
Double Headers—	13 7 6	11 17 6	16 17 6	16 17 6	16 17 6	16 17 6	16 17 6
One side and two ends, square—	12 7 6	12 7 6	20 17 6	20 17 6	20 17 6	20 17 6	20 17 6
Two sides and end, square—	18 7 6	18 7 6	21 7 6	26 7 6	26 7 6	18 7 6	26 7 6
Spall and Squares—	13 7 6	14 7 6	20 17 6	23 7 6	23 7 6	16 17 6	23 7 6
Plinth and Hollow Bricks, Stretchers and Headers—	81, each	81, each	81, each	81, each	81, each	81, each	81, each
Round Internal Angles—	81, each	81, each	81, each	81, each	81, each	81, each	81, each

MORTISED BRICKS.

Stretchers and Headers—	81, each	81, each	81, each	81, each	81, each	81, each	81, each
Internal and External Angles—	12 each	12 each	12 each	12 each	12 each	12 each	12 each
Chimney Bricks, Stretchers and Headers—	81, each	81, each	81, each	81, each	81, each	81, each	81, each

Majorities or Soft Glazed Stretchers and Headers £21 17 6
Quoins and Bullnoses ... 26 17 6
Compass Bricks, circular and arch bricks of angle radius 8 in per 1,000 over above ... Not exceeded.
For their respective kinds and colours ... 10 in. x 4 in.
16, 81, each ... 4 in. x 4 in.
Stretchers cut for Chases and Nicked Double Headers, £1 per 1,000 extra.
* These prices are carriage paid in full truck loads to London stations.

Thames Sand	6, d.	7, p. yard, delivered.
Py. Sand	6, d.	7, p. yard, delivered.
Thames Ballast	6, d.	7, p. yard, delivered.
Best Portland Cement	8, d.	8, d. per ton.
Best Ground Blue Lias Lime	20, 0	0 to 10 d. delivered

EXCLUSIVE OF CHARGE FOR SACKS.

Grey Stone Lime	8, d.	8, d. per yard.
Bournebury Fireclay in sacks 27s. 6d. per ton at fly, etc.	27s. 6d.	27s. 6d.

TILES.

Plain red roofing tiles	6, d.	7, p. 1000 at fly, etc.
Hip and Valley tiles	3	7 per doz.
60 Roseley tiles	60	0 per 1000
Ornamental tiles	60	0 per 1000
Hip and Valley tiles	4	0 per doz.
Reason red, brown, or brindle	67	6 per 1000
do. (Edwards)	80	0 per 1000
Ornamental do.	80	0 per 1000
Hip tiles	4	0 per doz.
Valley tiles	3	4 per doz.
"Perfecta" brand plain tiles—Plain tiles (Peake's)	50	0 per 1000
Ornamental do.	48	0 per 1000
Hip tiles	4	0 per doz.
Valley tiles	3	4 per doz.
Rosemary brand plain tiles	48	0 per 1000
Ornamental do.	48	0 per 1000
Hip tiles	4	0 per doz.
Valley tiles	3	4 per doz.
Staffordshire (Hanley) Reds or Brindle tiles	42	6 per 1000
Hand-made sand and red	42	6 per 1000
Hip tiles	4	0 per doz.
Valley tiles	3	4 per doz.
"Hartwell" brand plain tiles, sand-faced	50	0 per 1000
Pressed	47	6 per 1000
Ornamental do.	47	6 per 1000
Hip tiles	4	0 per doz.
Valley tiles	3	4 per doz.

OILS.

Rapeseed, English pale, per ton	229 18 0	to 239 5 0
Do. brown	229 18 0	to 239 5 0
Cottonseed, refined	30 0 0	to 30 0 0
Olive, Spanish	30 0 0	to 30 0 0
Sun, pale	30 0 0	to 30 0 0
Cocunut, Cochiti	30 0 0	to 30 0 0
Do. Cayon	30 0 0	to 30 0 0
Do. Mauritius	30 0 0	to 30 0 0
Palm, Lagos	30 0 0	to 30 0 0
Do. N. Z. Kernel	30 0 0	to 30 0 0
Glucose	30 0 0	to 30 0 0
Sperm	30 0 0	to 30 0 0
Lubricating U.S.	30 0 0	to 30 0 0
Sun, refined	30 0 0	to 30 0 0
Tar, Stockholm	1 6 0	to 1 10 0
Do. Archangel	1 6 0	to 1 10 0
Lime Oil	0 1 0	to 0 1 0
Basic Oil	0 1 0	to 0 1 0
Tarpetent	0 3 0	to 0 3 0
Putty (Genuine Linseed Oil)	0 11 0	to 0 11 0
"Pure Linseed Oil"	0 10 0	to 0 10 0

GLASS (IN CRATES).

English Sheet Glass	15s.	21s.	25s.	32s.
Fourths	15s.	21s.	25s.	32s.
Thirds	21s.	27s.	31s.	38s.
Second	27s.	33s.	37s.	44s.
First	33s.	39s.	43s.	50s.
Hartley's English Rolled Plate	21s.	27s.	31s.	38s.
White, Tinted, and Repose	21s.	27s.	31s.	38s.

VARNISHES, &c.

Per gallon	£0 8 0
Pine Pale Oak Varnish	£0 8 0
Pale Topal Oak	£0 8 0
Superfine Pale Elastic Oil	£0 8 0
Pine Extra Hard Church Oak	£0 8 0
Superfine Hard-drying Oil, for use of churches	£0 8 0
Pine Elastic Carriage	£0 8 0
Superfine Pale Elastic Carriage	£0 8 0
Pine Pale Maple	£0 8 0
Superfine Pale French Oil	£0 8 0
Extra Pale French Oil	£0 8 0
Rosengill Flatting Varnish	£0 8 0
Contract No. 2—Supply of Cast-iron Pipes	£0 8 0
Extra Pale Paper	£0 8 0
Best Japan Gold Size	£0 8 0
Best Black Japan	£0 8 0
Oak and Mahogany Stain	£0 8 0
Brunswick Black	£0 8 0
Borlin Black	£0 8 0
Knott's Black	£0 8 0
French and Brash Polish	£0 8 0

The Wandsworth Borough Council decided on Wednesday to erect a swimming-bath at Balham at a cost not exceeding £10,000.

An inquiry was held on Friday at the council-house, Birmingham, by Mr. A. A. G. Malet, one of the inspectors of the Local Government Board, under an application by the Birmingham and Edgbaston District Drainage Board for the sanction of the Local Government Board to borrow £56,000 for the provision of additional bacterial beds at Minworth Greaves.

PILKINGTON & CO.

(ESTABLISHED 1858.)
DEPTFORD WHARF
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POINCEAU ASPHALTE

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TENDERS.

* Correspondents would in all cases oblige by giving the addresses of the parties tendering at any rate, if the accepted tender; it adds to the value of the information.

A. JONES, LEAMINGTON.—For alterations, repairs, &c., and the erection of a new hall at Ashmore Hall, near Leamington, Warwickshire. Mr. C. M. C. Armstrong, Warwick, architects.—
Smith, G. F., & Sons, Leamington £1,632 15 8 (Accepted).

BIRMINGHAM.—For new bathroom and alterations to male ward No. 8, at Barmington County Lunatic Asylum, for the Kent County Council.—
Walke and Co., Maidstone ... £1,428 0 0 (Accepted).

BIRMINGHAM.—For the erection of new engine-house, engineers' and blacksmiths' shops, and stores, at the Western Road Workhouse, for the gasworks. Mr. W. H. Ward, Paradise-street, Birmingham, architect.—
Rotheroe and Co., Birmingham ... £1,278 0 0
Oakley and Conson, Dudley ... 1,199 0 0
Wilcock, H., & Co., Wolverhampton ... 1,198 0 0
Barnes, J., & Sons, Birmingham ... 1,198 0 0
Hart, W., & Sons, Birmingham ... 1,198 0 0
Webb, W., & J., Birmingham ... 1,198 0 0
Sapote, W., & Sons, Birmingham ... 1,198 0 0
Dunlop, C., Birmingham ... 1,198 0 0
Palow, J., & Sons, Blackheath ... 1,198 0 0
Smith, F. H., Birmingham ... 1,198 0 0
Whitehouse, B., & Sons, Birmingham ... 1,198 0 0
Swift, S. F., Birmingham ... 1,198 0 0
Crowder, E., Birmingham ... 1,198 0 0
Webb, G., & Son, Handsworth ... 1,198 0 0
Boren, J., & Sons, Birmingham ... 1,079 0 0 (Accepted).

BRIGHTON.—For the erection of drill-hall, rifle-range, and repairs and alterations to the Bull Hotel and Croft, Barton-on-Trent, to provide accommodation for the 4th North Staffordshire Regiment and the Staffordshire Yeomanry.—
Hodges, G. (accepted) ... £2,780 0 0

CANNY.—For additions to school, for the Lindsey Education Committee. Messrs. Beever and Linsdale, Bank-street Chambers, architects.—
Usher, G. R., South Foregate ... £267 10 0
Sutton, T., Market Haven ... 530 0 0
Scudman and Son, Market Haven ... 530 0 0
Madders, J. R., Barnby ... 530 0 0
Francis, G., Barnby ... 530 0 0
Sutton, T., Market Haven ... 530 0 0 (Accepted).

CALCULON-STEE.—For constructing waterworks, for the urban district council. Mr. J. P. Rowle, A.M.I.C.E., 25, Holborn Viaduct-street, Waterford, architect.—
Contract No. 1.—Constructive Works—
Martin and Co., Houghdown ... £1,731 7 6
Contract No. 2.—Supply of Cast-iron Pipes—
Stanton Ironworks Co., Nottingham ... 5,729 13 10 (Accepted).

Contract No. 3.—Supply of Valves, Hydrants, &c.—
Ham, Baker and Co., London ... 398 7 9 (Accepted).

For the plant and work necessary for carrying out the scheme of utilising the water-power at the Old Weir for the generation of electricity, for the city council. Accepted tenders—
Turbines ... £1,683 0 0
Gordon, J., and Co., London ... 2,968 0 0
Dynamas ... 2,968 0 0
Lancashire Dynamas Co., Manchester ... 263 0 0
Scribbard ... 4,630 0 0
Crompton and Co., Chelmsford ... 263 0 0
Bentley and Co., Bradford ... 4,630 0 0

CRICKLEWOOD.—For the manufacture and erection of three Diesel oil-engines with horizontal three-throw pumps at Cockfield and Fortis Green, for the Metropolitan Water Board.—
Cole, Marchant, and Morley ... £25,520 0 0
Hicks, Hargreaves ... 25,520 0 0
Stanton Co., London ... 25,520 0 0
Diesel Engine Co. ... 25,520 0 0
Salter Bros. ... 25,520 0 0
Tos ... 25,520 0 0
Koring Bros. ... 25,520 0 0
Gledhill and Kennedy ... 25,520 0 0
Williams and Robinson ... 25,520 0 0
Mirreles, Bickerton, and Day, Ltd. ... 25,520 0 0
* Subsequently amended to £25,520 0 0. * Recommended for acceptance.

GREEN STREET GREEN.—For the manufacture and erection of a Diesel oil-engine with deep-well pump at Green Street Green, Kent, for the Metropolitan Water Board.—
Westinghouse Co. ... £4,518 0 0
Tos ... 4,518 0 0
Hicks, Hargreaves, and Co. ... 4,518 0 0
Cole, Marchant, and Morley ... 4,518 0 0
Salter Bros. ... 4,518 0 0
Tos ... 4,518 0 0
Diesel Engine Co. ... 4,518 0 0
Gledhill and Kennedy ... 4,518 0 0
Williams and Robinson ... 4,518 0 0
Mirreles, Bickerton, and Day, Ltd. ... 4,518 0 0
* Recommended for acceptance.

LEE.—For the supply of a Cornish boiler with fittings, for the urban district council.—
Bucks, H., and Northerton ... £123 10 0 (Accepted).

LITTLEBOURN.—For rebuilding a highway bridge at Littlebourn, for the Kent County Council.—
Dwight, L. T., Canterbury ... £415 15 0 (Accepted).

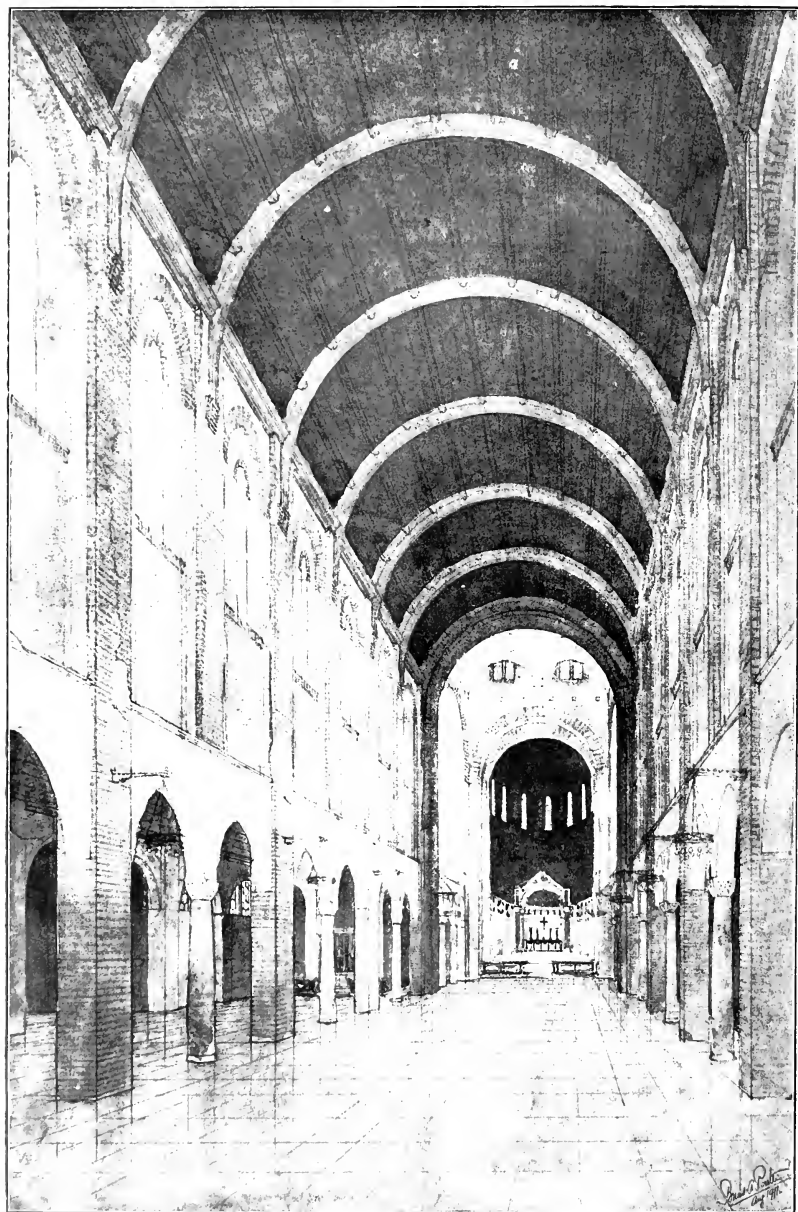
LONDON, N.—For providing at the Moreland-street, School, East Finsbury, a manual training centre for 20 boys, a new house for the school, and a large boys' playground, for the London Education Committee.—
Brand, Pettit, and Co., Tottenham ... £1,522 0 0
Woodward and Co., Finsbury ... 2,494 0 0
Crover, J., and Son, Islington ... 2,494 0 0
Smith, F., and Co., City ... 2,494 1 11
McCorrison, Sons, Ltd., Essex-road ... 2,390 0 0
Reason, W., Rosebery-avenue ... 2,390 0 0
Williams, G. S., and Son, Thornton ... 2,390 0 0
Roberts, L. H., and R. Rhedell-terrace ... 2,290 0 0
Watson, E., and Sons, Ltd. ... 2,290 0 0
City-road ... 2,290 0 0
Gordon, G., and Son, Kilburn ... 2,180 0 0
Rome, S., and Co., St. Marks ... 2,173 0 0
* Architect's estimate, £2,235.
* Recommended for acceptance.

LONDON.—For repairing with wood the carriageway of Waterloo Bridge (last renewed in 1903), for the London County Council.—
Improved Wood Pavement Co., Ltd. (recommended for acceptance) about £2,000, as per schedule.

MANCHESTER.—For erection of St. Jerome's Church, for the Bishop of Manchester. Messrs. J. M. Jones, Mr. E. Lingen Barker, 78, King-street, Manchester, architect. Quantities by Mr. G. Silvester, 7, Adam-street, Adelphi, London.—
Lunt and Son, London ... £4,735 0 0
Lunt and Son, Chester ... 6,672 0 0
Hollins and Co., Broughton ... 6,138 0 0
Ferry, N.B. ... 6,018 0 0
Townsend and Sons, Bolton ... 6,018 0 0
Hollins and Co., Manchester ... 6,018 0 0
Whitmore, Maitland ... 6,018 0 0
Normanton and Son, Manchester ... 6,018 0 0
Hargreaves and Salt, Manchester ... 6,018 0 0
Edwards and Anderson-Lytle ... 6,018 0 0
Gerrard and Sons, Swinton ... 6,018 0 0
Clayton Bros., Stockport ... 6,018 0 0
Moore, Eccles ... 6,018 0 0

(Continued on page X171.)





ST. JOSEPH'S CHURCH, ALDERSHOT. Design by Messrs. H. R. and R. A. Poulter, Architects.



LLOYDS BANK: NE and SONS, Architects.

We greatly trust, as seen as Parliament passes, the Irish Members will demand from Mr. Bland an explanation of this extraordinary attitude of the Irish and Government Bench. What is the reason for this? Is it a coincidence?

of the building, and the character of the work is more than amply displayed. The artist's perspective is in the H.W. line, and the building, which cost £110,000, has been built to a great extent on ladies' suggestions, and is maintained "that the building has been done at a cost of £110,000, and did not claim in the work of the professional architects." Of which, perhaps, the Bard is of a piece. In Mr. L. A. George's attempts to show at the others in connection with the Bismarck Act. It should be a good thing to the artist. The artist has done a good job of it. We have some of the same work in the same line, when similar work is begun, such as fully not to be up to the mark; but one never knows. What is good enough for Ireland to-day may be good enough for England to-morrow, and there is every architectural reason, every other kind of reason, to make back the protest of the R.I.A.I. with all the vigour of which it is capable.

THE NEW ENGLISH ART CLUB.

THE contrast between the excellent hanging of the pictures at the forty-seventh exhibition of the New English Art Club and the general manner in which the Royal Academy displays its pictures, at the outset, and although there is a great deal of rubbish, the average is a fairly high one, and a few of the pictures are really make their mark.

Nearly Mr. Orpen's "Cafe Royal" (166), more evidence as it is of the easily-accepted friends of the painter, who have evidently been going about for crime the number, which does not agree with them. Mr. John S. Sargent's "Hardly as happy as usual with his 'Requiem' (164), and still less so with 'Fathers' (172), in which his woman's head peep out at one from below of starchy crime. There is a picture of Mr. Sargent in Mr. W. von Glehn's "The Picture" (164), minus interest, in his smaller picture, "New England" (165), pictures better. One of the best pictures in the room, Mr. W. Rothenstein's "Princess Radnagladour" (17), we have seen before. The three children are charming; but we don't much care for the picture on the wall, which seems inclined to come down as part of the masquerade. What Mr. Henry Lamb's "Fantasy" (152) means we cannot guess, and we are still less impressed with his "Portra" (158). Mr. P. W. S. Sargent's "A Woodland Scene" (143) and "Bridgworth" (153) are not up to his best work. Mr. C. J. Holmes's landscapes are all good, notably the "Blue Precipice" (166). So is Mr. Walter Sickert's "Le Champ du Parc Danne" (149).

Among other notable works we may mention Mr. Gerber's "Applewoman and Her Husband" (112); Mr. David Milne's "Unknown Thoughts" (155); and his "Night Piece" (110); Miss Alice Farmer's "The Solent, Stormy Weather" (157); and her "On the Pier, Yarmouth, Isle of Wight" (111); "The Thrashing Machine" (191), by Miss L. B. Blatherwick; Mrs. A. S. Hartnack; and "Morning in the Black Rocks" (167), by Mr. Maxwell Armfield.

The watercolours and etchings are more numerous. "The Preparation" (159), by Miss Selva Goss, is well drawn, but the subject is not attractive; and Mr. Mark Gerber's "Head of a Girl" (116) is clever.

REINFORCED CONCRETE BUILDINGS.

By WM. G. SHAWWRIGHT, Licentiate R.I.B.A., M.C.I., and Chartered Surveyor in Building Examination.

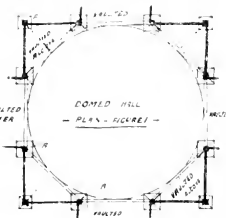
LARGE REINFORCED CONCRETE BUILDINGS.

A. H. B. CRAWFORD, R.I.B.A., Architect.

An effective piece of reinforced concrete has been designed by Mr. E. P. W. in the subject of the Laidoff House at Laverpool, a central dome and vaults of which are being formed on the lines of the plan

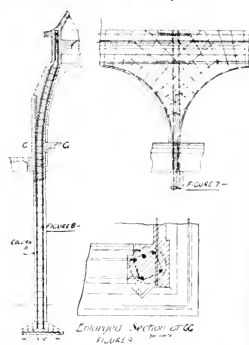
shown in Fig. 1, are the subject of the present article.

The domed apartment forms the central feature of the office block, the plan taking its inspiration from St. Stephen's Church, Wallbrook, being arranged on an octagonal base, supported on the



eight reinforced columns; the four opposite sides of the octagon forming semicircular vaulted approaches to the central chamber, whilst the four remaining sides are similarly arched to contain the vaulted recesses and lunette windows shown in the perspective sketch, Fig. 2. By this arrangement the central hall presents an imposing appearance, with a large central dome rising from a circular drum supported on a symmetrical series of arches, with pendentives

being bent round the central core of the drum at the lower end, and the lower round the whole series of eight rods, which form the kerb on the top, band stirrups, CC, being



introduced to provide additional ties in both cases (Figs. 5 and 6).

The annular rods D.D., arranged in pairs inside the radial rods, are carried right round the dome, split at the ends and well lapped and wired at the joints.

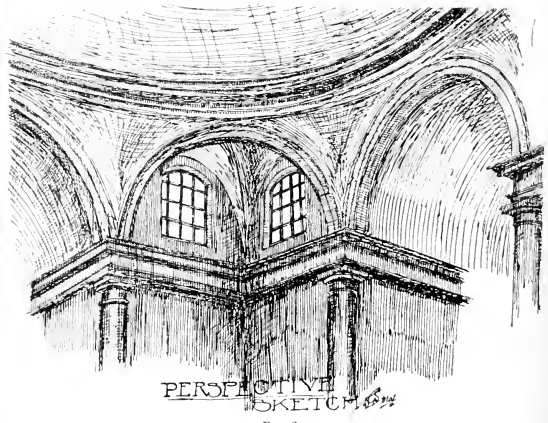


Fig. 2.

between which rise from eight columns equally disposed around the walls of the hall below.

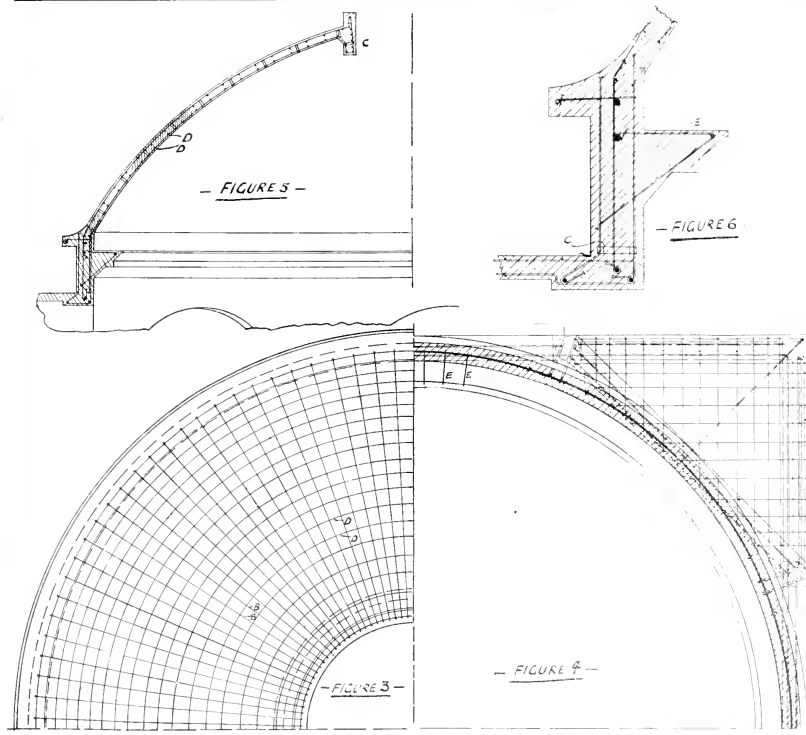
The execution of this scheme naturally presented some difficulty, and complicated features in the design of the reinforced concrete, in which material the whole has been constructed.

The central dome shown in detail (Fig. 3, 4, 5, and 6) is for total thickness, constructed on a flat soffit, without any extra radial beams or other projecting members. Fig. 3 is a quarter plan, showing the arrangement of the rods between the kerb at the top and the drum at the base, a sectional plan of which latter is given in Fig. 1. By reference to the section (Figs. 5 and 6) it will be seen that the drum is reinforced by a series of annular rods of varying sizes, a large central rod forming the core. The small radial rods B.B., Fig. 3, are arranged on the dual principle on the lines shown, the upper series

The supporting arches at the base of the dome are arranged upon an octagonal plan, and reinforced with three longitudinal and closely spaced vertical rods. Detail Fig. 6 shows the secure manner in which the whole of these rods are linked together to provide an efficient steel core for the concrete. An annular rod is placed at the edge of the projecting internal cornice, with linking rods E at close intervals, a similar arrangement applying to the external projection.

A plan of the reinforcement in the alcove is shown in Fig. 4. Dual rods closely linked with strap iron bonders are placed at the line of intersection or groin of the two small vaults, these rods being securely bound to the rods of the columns F (see plan, Fig. 1), and the kerb rods at either end. The dual lattice forming the vaults are carried across the groin and turned downwards into the concrete beneath the cornice.

The construction of the pendentives is



shown in Figs. 7 and 8, from which it will be seen that the rods of column A are carried up into the surrounding concrete, bent round to the curve of the pendentive, and carried

down in a concrete base 14 ft. in area, with a lattice reinforcement of small rods on the under side, linked with hangers, the whole being constructed on a sub-bed of 8 to 1 concrete 3 in. thick. Fig. 9 shows enlarged detail of the column and linking at the angles.

The construction of the four semicircular vaulted approaches to the central chamber is shown in section, Fig. 10. A lattice is formed of longitudinal rods, 1 1/4 in. traversing the whole length of the vault and arranged in pairs between the dual semi-annular rods J J. Strap-hinders are employed at frequent intervals, and the whole of the metalwork is well bound at all the points of junction.

The construction of the cornice with four longitudinal rods and links is shown in detail (Figs. 11 and 12), which also show the beam beneath the semicircular vault. The whole of the dome and vaulted work is constructed in 5 to 1 graded concrete (3 coarse aggregate, 3 in. mesh, 2 sand, and 1 Portland cement), with an external asphalt covering, the total thickness being about 7 in.

A clever and effective design, accompanied by sound construction, unquestionable material, have produced another of those successes which mark the progress and illustrate the useful application of reinforced concrete.

CHEAP CHURCHES ON CHEAP SITES

The Bishop of Chester presided over the annual meeting of the Incorporated Church Building Society, held on the 23rd inst., at the Church House, Westminster. Last year, he said, 2,068 new churches were aided, and

6,775 assisted. No building or repairs, and more than 2,000,000 seats had been secured. Serious difficulties had resulted from the building of cheap churches. In his own diocese a church, consecrated in 1866, had had to be reconstructed, owing to defective and damp foundations, and also owing to the fact that the heating apparatus had been clumsily put in. They not often appeared in the buildings. Another defect in churches was the position of the organ. The habit of removing the instrument out to the chancel, and very frequently shutting it up in what St. Frederick Dridge called a "meat-safe," had had a most pernicious effect on congregational singing.

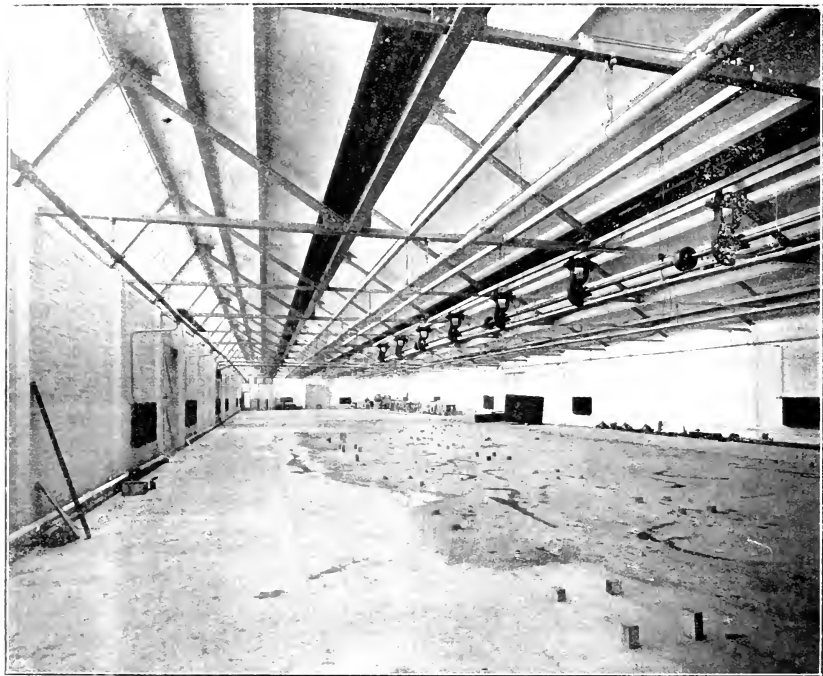
Mr. Walter Lupton, F.R.I.B.A., one of the honorary consulting architects, in moving the adoption of the report, remarked that the craze for cheapness had resulted in the building of cheap and nasty churches. He strongly advocated the gradual completion of the prime object, by succeeding generations. Ecclesiastical architects had been fighting the question of the large organ, which took a lot in plan, but of the present day more or less into a concert hall.

The Bishop of Manchester, in seconding, spoke of the difficulties of church building in towns and districts which were rapidly developing. The first thing was to obtain a good site, and if it was a back street, a cheap site was not always a bad site, and a good site was not always the long run. The report was adopted by a large majority.

Grants of money for churches made in aid of the Church Building Society, viz.: Build up

well into the concrete forming the drum of the dome; the pendentive itself being formed by a dual lattice of small rods.

Columns A are formed with a circular concrete shaft reinforced with four vertical rods linked at close intervals and carried well



THE MARSHALL TIRE TACKET SYNDICATE'S WORKS

to the following: Messrs. St. James, Essex, £200; Messrs. Parsons, Lambeth, St. Andrew, Surrey, £150; and Pimley, St. John's Wood, Middlesex, £160 for the most portable and sturdy, resetting and repairing the machinery of Calvey, All Saints, Essex, £200; and W. Day, St. John, Kent, £200. A grant of £200 is also made from the St. Mary's Mission Buildings Fund towards building a mission church at East Wickham, S. M. Kent. The following grants for completed churches are made: Ellfield, All Saints, Yorks, £200; Chessington, St. Mary's, Surrey, £15; Crickwood, St. Peter, Middlesex, £100; Droydon, St. Hubert, St. Helier, St. James, Herby, £150; Pinner, St. George's, Pinner, £25; Brixton, St. Paul, and St. James, £100; and £100 at East Thorpe, St. Mary. Total £200 for the grant of £200.

THE MARSHALL TIRE TACKET SYNDICATE'S WORKS

RENTAGES, CHATELAIN, TIRE-SHAPING, & CO.

THE MARSHALL TIRE TACKET SYNDICATE'S WORKS, a large part of which is situated at East Wickham, Kent, is a fine example of modern industrial architecture. The building is a long, low structure with a flat roof, and is divided into several large sections. The interior is a vast, open space with a high ceiling, and the floor is made of concrete. The building is surrounded by a large area of land, and there are several smaller buildings and structures nearby. The overall impression is one of a well-planned and modern industrial complex.

shops is interesting from an engineering standpoint.

Our illustrations are of the interior and exterior of the building, which is the principal one of the works. This is a fine room, 260ft. long by 60ft. wide, and has a "saw-tooth" roof with a north light. The most remarkable feature of this building is that there are no columns supporting the length or span of the roof other than the stanchions at the eaves. All the machinery, shaftings, and large pipes, as well as the horizontal ventilating flues, are suspended from the roof, which leaves the floor space beneath clear of any obstruction.

The construction system is known as the "Warren" principle. This particular roof consists of five long trussal bays on the "saw-tooth" principle, and is of steel throughout. The principal transverse girders, with outside steel beams, rest on steel stanchions every twenty feet of the length; these girders support 35 x 12 in. by 2 in. longitudinal steel joists 15ft. apart of the width; the joists, in the return, support the intermediate "saw-tooth" girders placed midway between each of the principals. All these members are hot-rolled, and thus the whole of the steel structure of the roof is practically one piece. The roof is timber-lined, covered with tarred felt and slates, and the fine north lights, glazed in 10 in. x 12 in. glass, under the horizontal web of system of glazing, form the longitudinal lighting. The filling in the eaves is of 14 in. by 6 in. cement, and it should be pointed out that the brickwork does not support the steel structure of the roof. The concrete floor is 8 in. thick with a 1 in. Granolithic surface laid out in 10 ft. square bays.

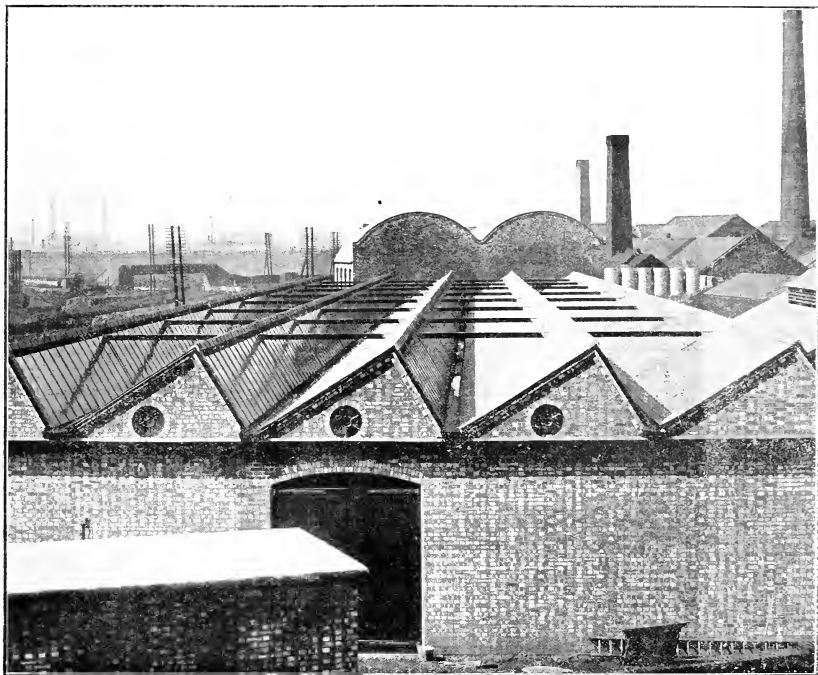
A somewhat novel feature for a factory building is the colour scheme. This is carried out in "Parpan" enamel, the iron-work being of a light green shade and the rest white, producing a very light and lofty effect to the interior of the building, although only 12ft. high to the longitudinal joists. The height is kept down so that the heating of the building shall be most efficient in winter.

The clear floor space and the effectively-diffused northern light in the building has made it possible to arrange the various machines in such a way as to economise space without cramping. There is little doubt that it is due to the great size and clear floor space of the room that Mr. Marshall has been enabled to systematise the various processes in such a way as to allow the place of on-process to adjoin the position for the following process, and thus a perfect supervision over the manufacture can be exercised. The building was designed by Messrs. John B. and Son, of Pinner, and erected under the supervision of Messrs. Gregg and Dehn, the architects.

ARCHITECTS AND THE CORPORATE SENSE*

At the month's meeting of the Transvaal Institution of Architects, held at the Board Room, Trust Buildings, Johannesburg, on Friday evening April 19, Mr. M. J. Harris read an interesting paper, entitled "Architects and the Corporate Sense," the President, Mr. H. G. Venter, presiding. Mr. Harris, who is

* A Paper read by Mr. M. J. Harris, M.S.A., to the Transvaal Institution of Architects, on Friday, April 19, 1912.



THE MARSHALL TIRE JACKET SYNDICATE'S WORKS.

honorary secretary of the Institute, said:—Recollections of the part I have taken in recent discussions here have gone far to moderate my first feeling of gratification on being honoured by your request to read a paper to our Institute. It is chastening to reflect that, possibly, my turn has come to undergo that treatment which on previous occasions I have assisted you in meting out to others. That historic instance of unexampled patience—Job—once so far vented his well-tried temper as to exclaim:—"Oh, that mine enemy would write a book!" Perhaps I am here, for my sins, to make burnt offering on the fires of your criticism. If so, I shall not complain. Indeed, the main object of this paper is to incite full discussion, the more effectively to draw timely attention to the important considerations involved in regard to the newly developing relationship of "Architects and the Corporate Sense."

THE CORPORATE SENSE DEFINED.

By the corporate sense in its relation to architects, I mean that civic conscience the existence of which in architects is, or should be, betokened by a regard for the duties we owe to one another, to our profession, and to the State, and by a consciousness of what is due to our art, and to architects collectively, by the State and public. On grounds of historical accuracy, some may question the view that the corporate sense is a newly developing quality in our profession, and may urge certain evidences as to the existence of co-operative schools or guilds in the ancient and Mediaeval periods of architecture. Be that as it may, the architect—as we under-

stand the term—is a comparatively modern development, no longer merely the artist builder directing his skilled craftsmen, but a specialist having many complex responsibilities and faced with a multitude of problems undreamed of in the simpler civilisations of former days. And, similarly many problems which confront the corporate sense of the modern architect are of a new nature, solution of which cannot be attained by any study of precedent. Any inquiry as to historic precedent for the corporate ideal among architects will thus, if interesting, be of small practical use. It is of more serious import to consider how far the corporate sense is in existence among us.

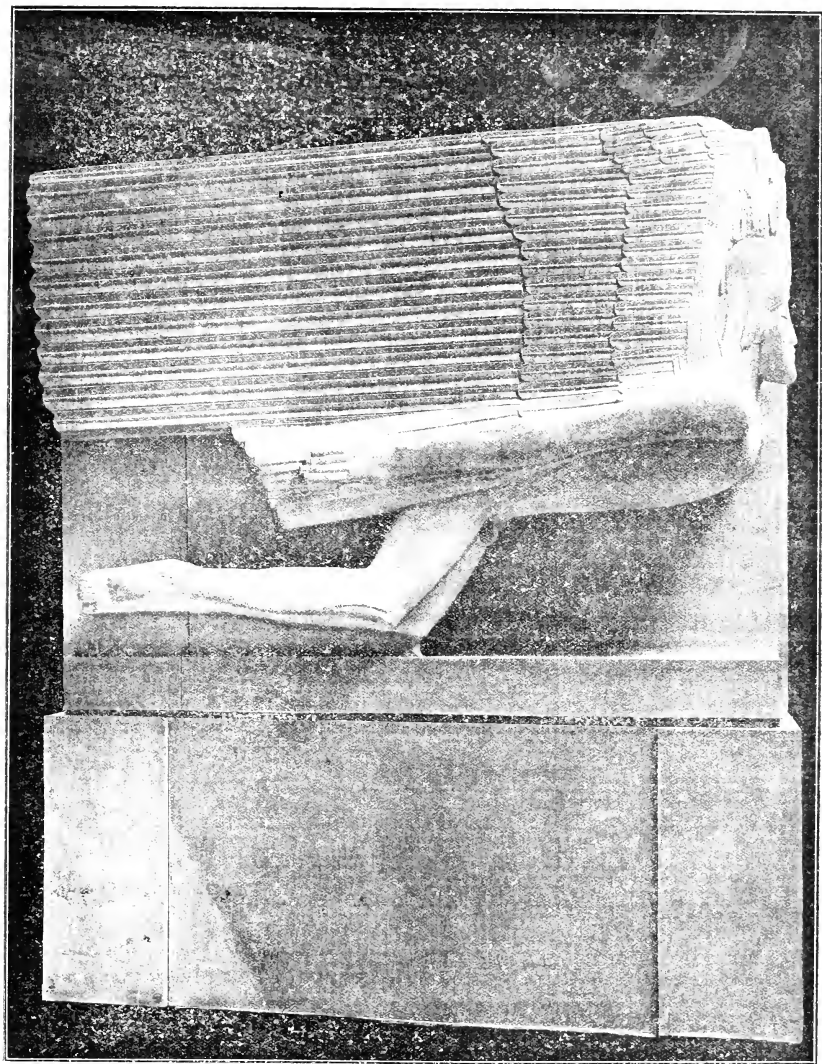
OF PROFESSIONAL "ISHMAELS."

Sociologists place this sense, the civic consciousness, high in the scale of human progress. By analogies drawn from observation of extant savage races, and from the growth of human consciousness in the individual, some have deduced stages of evolution through which prehistoric man advanced towards civilisation. From barbarian beginnings in which the cruder animal instincts and the gratification of personal desires formed man's sole mental equipment, they argue developments in which the love for kindred, for tribe, and for race successively appeared. Without actually adopting any such theories, it is easy to imagine a similar course of evolution in regard to the development of the corporate sense among architects. We are, unfortunately, only too familiar with these instances in our profession where self appears to be the one consideration; to a well aware of that

attitude which, in effect, cries aloud, "I am the artist, and in art there is My school and none other"; of those instances where our code of ethics and of professional usages have been dishonourably set at naught. Their hand set against their brethren, these are the Ishmaels of our profession—each of them the extant barbarian whose selfish attitude would constitute him the base of the evolutionary argument.

SAFEGUARDS OF THE CODE.

It is, however, a satisfactory evidence of the extent to which the corporate sense does obtain among us that throughout the civilised world architects have banded together in associations and institutes such as ours, for the furtherance of common professional aims. Standards of qualification have been set up; codes determined embodying, from wide experience, the minimum fees or charges compatible with honourable practice; clearly defined rules have been laid down demanding our proper conduct of the high responsibilities which fall to our lot in discharging the duties we owe to those who entrust us with the direction and care of their enterprise and interests. The recognition of a code of ethics among all artists and professional men is, in fact, universal. If this were not so, if artists and professional men—the seers and prophets of our day—were not alive to the dangers of the increasing commercial tendency of this age, we should all, ere long, be shrieking our wares in the market place, and bidding against one another in values of intellect and of worth of soul, to obtain the favour of popular patronage. How much intellect, and how



THE TOMB OF OSCAR WILDE, PARIS. (Mc Loughlin's.)

TOMB OF OSCAR WILDE, PARIS.—The tomb of Oscar Wilde, which was unveiled at the funeral of the poet on June 1, 1900, is a masterpiece of sculpture. The tomb is a large, rectangular, light-colored stone structure, which is set into a dark, textured wall. The tomb is decorated with a relief sculpture of a reclining figure, which is the central focus of the image. The figure is shown in profile, facing right, with its head turned slightly towards the viewer. The background is dark and textured, suggesting a wall or a cave-like setting. The overall composition is simple and elegant, reflecting the artistic style of the late 19th century.

W. L. P. La Chaise Cemetery, Paris. The exhibition in London was a magnificent one, with about twenty thousand visitors. The cost has been defrayed by the Government.

THE DISTRIBUTION OF STRESSES IN CERTAIN TENSION MEMBERS.

A paper on the above subject was given by Mr. C. Batho, A.M. Can. Soc., C.E., at a meeting of the Canadian Society of Civil Engineers, held in Montreal, on April 25.

It is becoming generally recognised among engineers, said Mr. Batho, that a correct knowledge of the strength of structural members cannot be obtained by breaking tests alone. This is more especially the case with tension members in which it is probable that, as soon as some part reaches the elastic limit, the distribution of the load may change, so that the breaking load and the appearance of the specimen at fracture may not give any high clue to the action of the parts under working loads. The first most satisfactory way of obtaining knowledge on the latter is by assuming the actual strain distribution under working loads, or, at any rate, at loads not less than the elastic limit of the parts, by means of some form of extensometer. Mr. Batho then described at length experiments made at McGill University and terminated by means of strain measurements with a modified form of the Morin extensometer, the distribution of stress in single and double angles, with riveted and bolted plates in tension, and to compare it with the theoretical distribution under different assumptions. Experiments are still in progress on similar members in compression and on built up members, and it is hoped that the present paper may be only a first contribution in the subject.

The experiments on built up members indicate that these do not, in general, act as one solid piece, but that the separate parts must be considered as eccentrically loaded members subject to constraints. From this it appears that the only way to build up a satisfactory theory of the action of such members is to commence with the problem, which is important in itself, of a uniform piece subjected to an eccentric load, and to work up gradually to more complicated members.

In his remarks on built up members, Mr. Batho stated: A built up tension or compression member is one which is made of two or more simple sections, such as angles or channels, fastened together by rivets and by tie plates, lattice bars, or other connections, as in the case of a large column. Probably the simplest form is the double angle considered above. Such a built up member is usually considered as acting like one piece, and the forces in the tie plate or lattice connections are found on the assumption that, if any bending takes place, the whole member bends like a beam. The experiments show that this is not true for the specimens tested, and it would probably be more correct to consider such a member as an assemblage of simple members, each trying to bend about its own neutral axis, but being less constrained by the secondary forces, etc. The only way to arrive at a correct theory of the action of such structures is to consider the simplest cases first, and to proceed gradually the more complex by introducing one constraint after the other, and finding their effect by experiment and calculation. An example will make this point clear. Consider a column in the form of a rectangle built up of four angles, connected by tie plates or lattice bars, and loaded by two equal loads applied parallel to the faces at the ends. The ordinary theory of columns assumes that the whole member bends like one piece, the tie plates or lattice bars thus acting in taking on the stress like a beam of the same shape. According to the theory of columns, the angles would be regarded as bending about their own neutral axes, and the whole member would be considered as bending about its own neutral axis, which has been shown to be incorrect, and the tie plates would be in tension against twisting, and

so would themselves be under bending stresses, the whole action being, of course, somewhat complicated. It may be stated that actual extensometer experiments on such a column, carried out under the direction of Professor H. M. Mackay at McGill University, entirely bear out this view, the stresses in the tie plates being found to be tensile on one side and compressive on the other.

CONCLUSIONS REACHED

The chief conclusions to which the present paper leads are:

1. That the form of extensometer described is very accurate and simple in operation, and that it is possible by its means to obtain very closely the distribution of stress in a piece of material under load.

2. That experiments made with these extensometers on tension specimens of uniform cross section subjected to eccentric axial loads not in an axis of symmetry of the cross section bear out very closely the general theory for such a case.

3. That the point of application of the load for a single angle member loaded through a plate riveted to one of its flanges may be taken as in the line of rivets and at the common face of the plate and angles.

4. That the end plate, under ordinary conditions, offers no appreciable restraint to the bending of such a member.

5. That a member consisting of two angles riveted together through a connecting plate does not act as one piece, but that each angle bends about its own neutral axis, and that it is not always an advantage to attempt to make it act as one piece by further constraints.

6. That a built up member should not be regarded as a single piece bending as a beam, but as several pieces each trying to bend about its own neutral axis, but restrained from doing so by the subsidiary members, such as the tie plates or lattice.

Mr. Batho expressed his thanks to Professor H. M. Mackay, to whose suggestion the work was commenced, Professor E. Brown, and Mr. F. P. Shearwood, of the Dominion Bridge Company, for their personal interest and advice, and Mr. S. D. Macnab, of the McGill University Testing Laboratory, who was associated with him throughout in the experimental parts of the work. He is indebted to the Dominion Bridge Company for the specimens used in the tests.

PRICK ORNAMENT.—VII.

PILLARS AND COLUMNS.

The first example, Fig. 1, illustrates the ordinary simple, square, brick pillar, as used

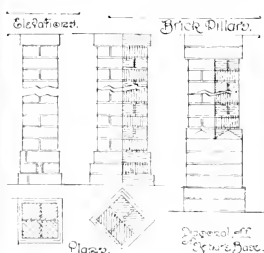


FIG. 1.

in many of the commonest positions. By placing it on the diagonal, as shown in No. 2 of the same figure, it is at once turned into a more ornamental feature. A row of such diagonal pillars, preferably paired, introduced on a veranda, porch, or similar feature, produces a good effect in the picturesque character of a structure. Quite a fair amount of ornamental effect is so produced, the least cost incurred for its production being really that of a square pillar in perfectly

plain brickwork. Figure 2 illustrates another composite method of using plain bricks, with very little cutting, on the diagonal or cross. Whilst such light work could not be used where a large amount of weight had to be supported, still there are many positions where it might be introduced as an inexpensive item, having a certain amount of decorative recommendation, such as a light porch, verandah, garden pavilion, summer-house, or for pergola work especially; it has

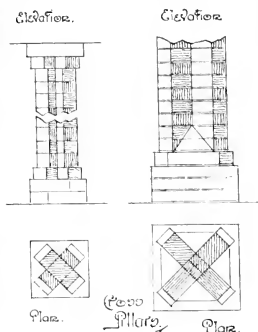


FIG. 2.

that degree of picturesqueness so desirable when combined with foliage. Such effects with the latter class of work appear all the better by being attained with the simplest method possible. An extension on the same plan, producing a pillar of still bolder appearance, with more strength, is shown by the second illustration on this figure. The succeeding elevations, in Fig. 3, are also based on the same plan, but have a little moulded brick introduced by way of some slight elaboration. Nos. 2 and 3 on this figure also having one or two slightly cut and rubbed spiky bricks further introduced in the angles. (It should be remembered that such pillars take a quarter less weight than a solid square of the same area.) Fig. 4 also illustrates a useful method for picturesque work

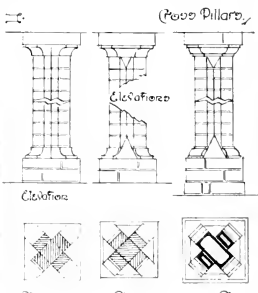


FIG. 3.

of a garden character. These pillars are exceedingly light, as should be noted, whilst they might answer the purpose of light pergola work, running in pairs, and when set in cement. They are not, of course, adapted to take a heavy load or for unsheathed positions. As seen, it involves the cutting of a brick to obtain the diagonal features. No. 3 on this figure forms the strongest method of construction in this light type, but

involves more cutting and wastage than the other methods, therefore proving a little more expensive than might appear at first. A centre joint to the diagonally-laid half-bricks, as

shown by No. 4 on this figure, also produces a slightly stronger pillar, at the same time giving equality of projection to the corners. By a combination of joined pairs of the same type, a strong, serviceable pillar is produced, quite suitable for a constructive point of view for most positions to which it might be adapted, as illustrated by Fig. 5. To obtain a fairly fine and most effective projection to the corners, cutting is necessary, either as

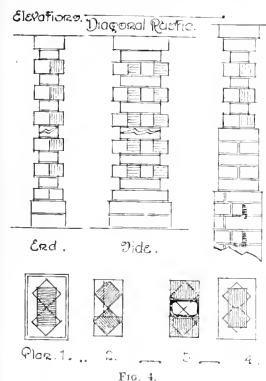


FIG. 4.

shown by No. 4 on this figure, also produces a slightly stronger pillar, at the same time giving equality of projection to the corners. By a combination of joined pairs of the same type, a strong, serviceable pillar is produced, quite suitable for a constructive point of view for most positions to which it might be adapted, as illustrated by Fig. 5. To obtain a fairly fine and most effective projection to the corners, cutting is necessary, either as

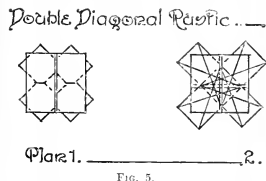


FIG. 5.

shown previously or by No. 1 on this figure, or by the method illustrated in the plan on Fig. 3. In Fig. 5 the second plan shows the use of a whole brick by the crossed lines, and their halves or bats, in the alternate bonding course. The position of the whole brick being reversed alternately in these courses as the work proceeds, less cutting is involved than by the first method. The effect of this pillar, with its greater projection, is of a bolder type; in some cases it might be considered coarse. Fig. 6 illustrates a method

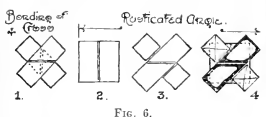


FIG. 6.

of reducing this type to its minimum in a matter of cutting, and therefore expense, by use of the splay-bricks, where such might be readily obtainable. (It should also be noted that the cross pillar can be formed similarly in this dimension at a slightly reduced cost.) The alternate courses for breaking joint are correctly being shown in the sequence—1, 2, 3, and 4—as built over one another. Regular-faced octagonal pillars may also be readily formed with the splay-brick, as shown by

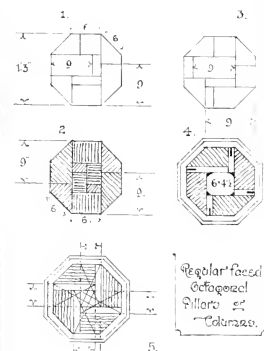


FIG. 7.

The expense can be slightly reduced per column by building it hollow without the centre packing shown in Nos. 2 and 4. The latter number shows another method of solid construction which might slightly lower the cost by using the splay-bricks whole and filling in the narrow portions with a couple of thick tiles. The cut ends of latter, turned inside, could be left quite rough, forming a better bond. But to the centre would not require fine cutting either, whilst the appearance of the tiles on face would also add to the picturesque nature of the pillar for many purposes. No. 5 illustrates another method to obtain an extra strong bond where such might be essential, the alternate courses of splays being cut as indicated by the dotted lines, and a whole 9in. brick built in alternately in various reversed positions of the

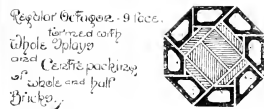


FIG. 8.

successive layers, as shown by the crossed portions. Larger regular octagons, with 9in. face, can be readily and cheaply formed with whole splays, on the plan illustrated in Fig. 8. Here there would be very little cutting required in the construction of such a pillar or column. No wastage would be involved either, the centre packing being made up with two whole 9in. bricks and half-bricks, the cut corners of the latter going to fill in the small interstices where such occur. The plan also adapts itself readily or reversing and breaking joint alternately, thus forming a good bond, the splays coming into the positions indicated by the dotted lines. In some positions, again, this might well enough be constructed hollow if built in good cement, for pergolas, etc. Whilst for a fairly light porch packing of very rough concrete might be used. Fig. 9 illustrates three examples of the irregular-faced octagon, the difference of width between the two faces

obtained by this method of construction is slight that no actual exaggeration or distortion is occasioned thereby. In fact, a slight relief formed in this respect would

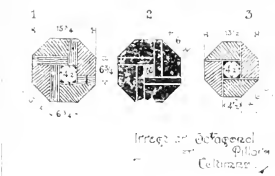


FIG. 9.

merely make a break in the otherwise mechanical nature of the column, thus giving a more picturesque element. No. 1 in this illustration shows the construction of a whole splay-brick, two whole half-bricks, and a cut half-brick. Most of the filling in the smaller lengths can be packed with the cut ends from the latter, whilst the cut in the centre also lines up in a convenient size for using the whole, or most of the material without wastage. The cutting required is neither large nor fine, at the same time forming a very convenient method of construction. Even this small amount of cutting can be dispensed with entirely by the use of whole half-bricks or Queen Closers, contained right across, as shown by No. 2. The small centre bit might well enough be filled with first-class concrete. In some instances this type would prove of special value, as it admits the introduction of a reinforcing bar, 2 1/2 in. by 2 1/2 in., which, with four or six pieces, would be useful in lightening what

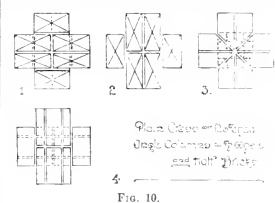


FIG. 10.

might otherwise be a somewhat cumbrous column. This would be a considerable where space happened to be somewhat restricted and appearance desirable. No. 3, again, gives a little more inequality of facing, although not considerable. At the same time, the construction is simplified to a greater extent. It would undoubtedly prove exceedingly useful for a large amount of work, where the cost had to be carefully studied. Neither of these examples could be considered expensive, whilst No. 2, comparatively speaking, entails no more extra labour than the formation of an ordinary line by nine or any other regular brick dimensioned square block which is supposed to be "cheap." The octagonal column is an exceedingly good form, adaptable to much ornamental work, yet it is very seldom used, mainly under the erroneous impressions of the impractical "practical" man, who views it with suspicion as being "very expensive." Fig. 10 illustrates the plain cross or notched angle column, another picturesque type for country, suburban, and garden work. Formed with ordinary bricks in the cheapest manner, without any cutting, it is shown by No. 1, with its alternate coursing in No. 2. Although this gives a fairly good bond, suitable for a great deal of work, it will be seen that straight cross joints and long joints are bound to occur right up the whole length of the column. For some work this would be inadvisable. By adapting the splay a better system of bonding is formed, as illustrated by No. 3, the alternate courses being placed

absolute title in all cases, as occasionally there might be difficulty in producing the necessary proofs. For this reason registration with "Possessory Title" (which requires only prima facie proof) is alone made compulsory. The owner of the title can only be registered as possessor. Consequently, not much relief as regards cost has yet accrued on dealings with compulsorily registered land. This has caused a very inadequate idea to prevail among the public generally as to the capabilities of the Acts in facilitating and cheapening the transfer of land.

There is no reason whatever why nineteenth-century purchases registered in London should be regarded with absolute title. This applies with even greater force to purchases of land already registered with possessory title (which now number between 4,000 and 5,000 every year) than to purchases of unregistered land. No extra fee or expense of any kind need be incurred. No additional formality need be observed except to leave the registry, along with the transfer, the deed and papers already in the applicant's possession relating to the title.

NOTE A.

MEANING OF THE TERMS "ABSOLUTE," "GOOD LEASE-HOLD," AND "POSSESSORY" TITLE.

There are three main ways in which land may be registered under the Land Transfer Acts—namely, with Absolute Title, with Good Leasehold Title, and with Possessory Title. It is not difficult to explain what Absolute Title means. It means that the deeds have already been examined and have been found to show a safe holding title, and that the ownership is guaranteed by the Government. The register is a guarantee for the owner being able to produce the land without delay, without risk, without cost, and without trouble. The purchaser can acquire it like a freehold, without delay, without risk, without cost, and without trouble than is involved in reading a few plain entries in a book, and in filling up a short printed form of transfer to sign. The title is a title of the highest quality, so that shown in the table opposite page 769, is "Good Leasehold Title—Leasehold land can seldom be registered with an Absolute Title, owing to the inability of leaseholders to give the production of the Freehold Titles, and so to prove the original validity of the lease itself. A special form of registration, called Good Leasehold Title, has been devised to meet this state of affairs. It amounts to a guarantee (by the Government) of the leaseholder's title to the lease, but it does not guarantee the original validity of the lease itself. At the same time, it may be remembered that on ordinary sales of leasehold land the validity of the lease is not in question, the purchaser having neither the wish nor the right to inquire into the Freehold Title. Therefore, for purposes of protection on sale, the same advantages as registration with Absolute Title.

Possessory Title.—Registration with Possessory Title is effected on circumstantial evidence, and is useful in cases where there might be difficulty in obtaining Absolute Title. So far as regards security from fraud, since the form of title is the same as with Absolute Title, but it does not immediately confer on the proprietor and it does not immediately give him redress as to the land against all the world. Its effect is not retrospective; it keeps the title clear for the future, but it does not protect against claims dating from a time prior to its first entry on the Register books.

Consequently, if the land has to be sold very soon after its registration with Possessory Title, the purchaser is prepared to have almost the same protection made into the prior title as would have been made if the land were unregistered. The only danger is that the claims of others are much inhibited, though probably not wholly avoided. Finally, after an interval very considerably longer than that which would be the case with Absolute Title, the land may be converted into Absolute or Good Leasehold on very easy terms, especially on a sale.

NOTES ON WATER-SOFTENING.*

By Dr. JOHN F. MLYER.

As far back as 1756 the natural zeolites were first described in the "Transactions" of the Academy of Sciences at Stockholm; but it was not until 1850 that Theodor Way, con-

sulting chemist to the Royal Agricultural Society in London, established the fact that the zeolites placed in contact with salt solutions were capable of absorbing the bases contained in the dissolved salts, at the same time yielding up into solution the bases which they themselves contained.

Let me here repeat one of Way's experiments:—In this small glass filter you see a layer of natural zeolites; for convenience I took fuller's earth. I will pass through it a water of 10deg. hardness, and as you will see from the test I now make, the hardness of the filtered water has been reduced. The following reaction took place: The bases contained in the hard water, calcium and magnesium, have been absorbed by the zeolites, and the latter have given up their own bases (sodium) to the water. This experiment explains to a certain degree why a soft water of perhaps 10deg. is very often found at a depth of, say, 500ft., while at a depth of 100ft. the hardness of the water out of the same borehole is 50deg. The calcium chloride in the rain water, passing through a strata of limestone, and thus becoming hard, afterwards passes through a layer of these natural zeolites, whose softening action you saw just now. Dr. Gans, Professor at the Mining Academy of Berlin, and president of the Laboratory of Germany at the Berlin University, made a thoroughly scientific research of the natural zeolites, and his researches have been published in the constitution formulae. I shall not bother you here with all the chemical formulae; but anybody who cares to have them, I refer to the March number of the "Journal" of the Society of Dyers and Colourists. Ultimately Professor Gans succeeded in producing zeolites artificially, and took out a patent for manufacturing artificial zeolites on a commercial scale in the year 1906. He named his artificial zeolites "Permutit" from the Latin "permutare," to exchange. The great outstanding property of Permutit, against the natural zeolites, is its greater power of exchanging its own base against other bases. This process of exchange follows closely the stoichiometric law of chemistry, and sodium permutit exchanges sodium permutit into calcium permutit, magnesium permutit, ammonium permutit, potassium permutit, etc., by passing through it solutions of calcium, magnesium, ammonia, potassium, etc. The proof that only an exchange of bases takes place is shown by the fact that if you pass through a layer of calcium-permutit a solution of sodium chloride, the solution which contains the base sodium, you convert the calcium and magnesium permutit back into sodium permutit.

The following experiments will illustrate my previous remarks: I have here in this glass tube a layer of sodium-permutit, which is a grey, porous silicate, and will pass a hard water of 20deg. through the permutit. (The hardness consists of 10deg. bicarbonate of calcium and 10deg. sulphate of calcium.) You see the exchange takes place, and sodium-permutit has absorbed the calcium from the hard water and yielded its own sodium basis to the water. The filtered water is 0deg. To illustrate this further, I will pass a water of 20deg. through the same filter; the hardness in this case is due to magnesium sulphate. You see, again, the filtered water is 0deg., showing that the exchange of the base magnesium took place as readily as when calcium was removed. The next filter contains a layer of calcium-permutit. Now, if I pass a solution of common salt (the basis of which is sodium) through the filter, the base calcium from the calcium permutit enters the common salt solution, and the sodium enters the permutit. As you will see, the sodium leaves the filter, and contains the calcium which has been turned out of the permutit, as I will show you by adding ammonium-oxalate, which, in the presence of calcium, will form a white precipitate. Gentlemen, these experiments disclose the whole Permutit process for water softening down to 0deg., and the procedure of regeneration.

No need to repeat in words what we saw, and so describe this new process: If a water of a given hardness is passed through a bed of

sodium-permutit, the sodium in the permutit is replaced by the calcium and magnesium taken from the water, giving a calcium-magnesium permutit, while the acid radicals formerly united to the calcium and magnesium in the water unite with the sodium which is turned out of the permutit. There will obviously come a time when all the sodium in the sodium-permutit has been replaced by calcium and magnesium from the treated water. When this period is reached it is not necessary to renew the permutit, but it becomes necessary to regenerate or re-activate it. This is done by the action of a solution of common salt on the exhausted permutit. The laws of chemical exchange again come into play, the interchange being in this case in the opposite direction, sodium from salt driving out the calcium and magnesium from the exhausted permutit and converting it back to sodium permutit. It is obvious that all the manufacturer of sodium-permutit plants has to do is to calculate how much sodium-permutit is necessary to take out the hardness of the water per hour and per day, and then to place the permutit into a cylinder. The two drawings here show different types of a permutit water softening plant, gravity and pressure. Many methods have been, and still are, employed to soften a water—some precipitates the lime and the magnesium in the water by addition of lime and soda, the other by addition of lime and baryta, the third by addition of caustic soda. But all these processes suffer from the disadvantage that in the softening of cold water the precipitation of lime and magnesium does not take place instantaneously, but only after a comparatively long time. It is also impossible to obtain a complete softening down to zero degrees by any one of the said processes. Gentlemen, if you take into account the fact that most of the water supplies in England are of a variable nature, the constituent changing daily in the hour, the time and the place, I will agree with me that by the aid of a fully trained water chemist only is it possible to use any of the above-mentioned processes for softening water down to 0deg. without making it more injurious than the crude water, on the one hand, through an excess of the reagents used, and on the other hand, by an insufficient quantity of chemicals, resulting in partially treated and invariably turbid and cloudy water. I have nothing to say against the above-mentioned three processes when they are worked by a trained water chemist, who makes the analysis of the water every hour and adjusts the amount of reagents according to his analysis, testing at the same time the composition of his reagents by analysing the soft and hard water. If this trained water chemist is to succeed in softening the water down to 0 deg., and keep its alkalinity down, then his time is fully occupied the whole day long. What I absolutely condemn is the practice of many of those who sell a so-called automatically working lime and soda water softening plant to a suffering manufacturer. This is a limit of inevitable sizes for all waters, irrespective of their composition, although an analysis is generally made in the laboratory of the seller of the plants. The manufacturer is told to add so much lime and so much soda to the water, the softening time being generally calculated as sufficient with one hour, which is totally inadequate. When he asks the farmer for his plant the manufacturer is very often left alone with it, and finds pointers after a month that the scale in his boilers is not quite as thick as before, but hard like enamel. The consumers are choked up with a very fine powder, in the washing machine he finds a layer of a fine powder, the pipes are filled with this fine powder, the water is so hard as when he uses hard water, the wool washed with the soft water has become harsh, etc. The manufacturer blames the seller of the water softening plant for putting these defects right, and owing to this being impossible, comes to the conclusion that water softening is a thing he can sufficiently do without. The water chemist finds this automatically working apparatus cannot produce automatically a soft water, because

* Presented at a South-Eastern District Meeting of the Institution of Mechanical Engineers on Wednesday, 3 May 1912, at No. 1, Southampton-row, W.C.

CURRENT CALAMO.

The result of the Australian Home Secretary's practical boycott of British and Australian architects is that the first prize offered for the best design for the new Australian Federal capital has gone to an American, the second to a Finn, and the third to a Frenchman. Labour, which practically rules the roost in Australia, has thus identified itself with the policy of encouraging foreign "black-legs" who, bound by no ties of loyalty to British and Australian representative unions, were, of course, able to respond to the invitation to compete; which, shackled as it was by unfair conditions, has been most properly ignored by architects at home and in the Commonwealth.

Not without shame have we to confess that, at the moment, we cannot say that the Australian Home Secretary is not entitled to fling at us the old taunt, "What about Ireland?" There, as we have pointed out elsewhere to-day, the Government is pursuing exactly the same policy, in defiance of the remonstrances of the Royal Institute of Irish Architects. How is it that here and at the Antipodes officialism is so blind to the interests of the taxpayer, who is, above all things, entitled to best value for the money he contributes? Where is this in-olent disregard of the demand of skilled labour for fair conditions to stop? Is the next outrage on common-sense to be Mr. Lloyd George's gracious permission to all and sundry to patronise the quack of every sort at the taxpayer's expense if the doctors refuse to be sweated?

The other day we printed a letter from Mr. H. A. Hall, Hon. Secretary of the Architectural Association, stating that his Council are intending to augment their almost unique collection of Medieval Detail which they inherited at Tufston-street, by developing and adding to their treasures, in order that students may possess within their doors a much more comprehensive assembly of casts illustrating the architectural evolution of this country, and of others also. It might assist in that direction if we remind those who may chance to know, and to inform those who are unaware of the fact, that in the School of Art at Cork there is housed quite a remarkable series of Classic antiquities which might be well worth repeating for Westminster. About a hundred years ago, through an accident, these casts got landed in Ireland when on their way to London. The vessel on board of which they were shipped, as a present of Grecian sculpture in the Vatican from the Pope to King George III., was wrecked off Cork Harbour; but so little did his Majesty care for artistic things, that he shirked the incidental expenses of their salvage, and accordingly intimated to the shippers his willingness, under the circumstances, to forego all monetary obligations by permitting the authorities of Cork to pay the freight and other incidental charges and keep the goods. Farmer George of course had other interests, and evinced little care for art, as was common with most of his contemporaries. Thus it came about that the City of Cork was, and is still, possessed of these fine specimens of the Greek. For years, however, they were neglected and left to dust and dirt, so that in time they became as black as a hat till, as Mr. Thaddeus tells us, "somebody suggested that they should be washed and whitened, when their beauties

became more evident, and we are told that MacIse, Mulready, Barry, and Foley, among other students, grounded their knowledge of Classic refinement upon the study of these same antiquities from the Roman Pontiff's Palace.

Would it not be opportune and also a wise thing to endeavour to obtain copies for the Architectural Museum at Westminster, and in this way to carry out, to some extent at any rate, the project mentioned by Mr. H. A. Hall? The relation of Greek sculpture to architecture was always intimate and incidental to it. Certainly, we have not seen the specimens in question—they may be too sculpturesque; but we may safely presume that their detail is not undercut like much of the Gothic carving, so that probably the possible damage to the originals in this case is not likely to count. Certainly the cost would not be excessive, provided the trustees, whoever they may be, in charge of these casts will give permission for the replicas to be made, and, in fact, it might be worth while to ascertain whether the Committee of the Cork School of Art would be willing to exchange copies of them for a representative set of Medieval ones. This might be managed without risk provided suitable subjects were selected adapted to reproduction.

For many years the Council of the Royal Architectural Museum supplied copies of this sort to art schools at home and abroad, but made a rule not to allow new casts to be produced from delicate or very undercut ornaments, because the chance of damage would be too great, and only one firm was allowed to carry out the work. The proceeds of these sales went towards the current expenses of the Museum. With a little enterprise on the part of the Council of the Architectural Association, much might be done, subject to the same necessary precaution, towards the augmentation of their valuable museum, and with that object in mind these notes may be taken as directing attention to one way of realising the intentions referred to by our correspondent.

The Departmental Committee appointed by the Lords of the Treasury to inquire into the system of providing Post Office buildings, with particular reference to the alternative policies of renting a building, whether by H.M. Office of Works or the Post Office, is a strong one, composed as it is of men of judgment and experience. Sir F. Cawley, Bart., M.P., is nominated as the chairman, and the four other members are Mr. W. E. Horne, M.P. for Guildford, the President of the Surveyors' Institution; Mr. John Slater, B.A., F.R.I.B.A., a Past President of the Architectural Association, surveyor to the Berners estate in Marylebone and a member of the Tribunal of Appeal under the London Building Acts; Mr. C. J. Howell Thomas, F.S.I., a principal valuer in the Inland Revenue Department; and Mr. Henry Herbert Hambling, general manager of the London and South-Western Bank. The Secretary of the Committee is Mr. L. C. Bromley, of the Treasury.

It goes without saying that in the face of another labour crisis the "British Socialist Party" did nothing but play at "Dear Gardens" at Manchester on Monday; while the L.L.P. at Merthyr principally devoted its energies to abusing the Labour Party in

Parliament. To the Co-operative Congress one turned with more hope, but vainly. The Co-operative movement can report an increase of 100,000 members, of share capital by 1½ millions, of sales by 4½ millions, and of profits by nearly a million. That is all to the good, as far as it goes, and does credit to its controllers—almost entirely working men. But it is all buying and selling. Mr. Openshaw, the president, had to confess, like all his predecessors before him, that progress in productive enterprise had been disappointing, and that "they should not only produce for themselves all the things they needed, but also employ their members in the process!"

Why don't they, and solve the labour problem once and for all? Because in many cases the Co-operator is as keen after the dividend as his bigger brother the great capitalist. Keener, because he grudges the price of really skilled direction. Because, too, on the other hand, many things produced cannot be produced cheaply and well by honest Co-operation. Yet with Co-operation alone rests ultimately the solution of all industrial problems. All the talk about opposed "classes" and "masses" is nonsense. All the "luxury" of the rich is such a pitiful trifle compared with the perfectly possible output of well-directed labour to-day, were it not for cut-throat competition, and the unemployment which for a time follows every increase of productive power, that it is like a drop in the bucket. Co-operation might have any amount of capital it asked for to-morrow if it gave a fiftieth part of as valid an assurance of real ability to use it for production as is vouchsafed by the last lying prospectus of cent. per cent. dividends for the gudgeons who swallow the ground-bait of the company promoter. So far, in no great industry has Co-operation moved one real step. Where is the Moses to lead the people out of the Egyptian slavery of modern Labour strife into the economic Canaan of really organised production?

Holman Hunt's "Lox Mundii," for which the late Lord Tweedmouth paid a thousand guineas, has gone cheaply to Manchester for £350, after having been declined at that figure, so it is said, by the City of Liverpool. There are three paintings of this picture by Holman Hunt. One hangs in Kible College, another in St. Paul's Cathedral, and the third was acquired by the late Lord Tweedmouth. The present Lord Tweedmouth seems to have been genuinely inspired by the desire to benefit the picture-lovers of Liverpool, with which city he has local associations; but Liverpool seems contented to let Manchester have the painting. A few flaming paragraphs of the sort we have become familiar with lately of the inevitable sale to an American millionaire, etc., etc., etc., would doubtless have sent the price up to ten times the modest sum asked!

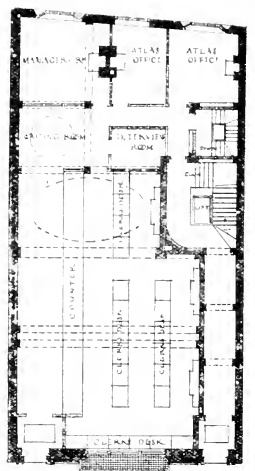
Another "antiquity" has been added to that *omnium gatherum* of the relics of the Metropolis—the London Museum, a handsome cab. Jehu is not quite off the streets yet, so the enterprising curator can be congratulated on having taken time by the forelock! Perhaps, in the twenty-first century poetic young couples who may still then read Mr. Le Gallienne, though no longer

Like Gallienus flies the hansom hover
With jewelled eyes to catch the lover,
may be allowed to take the precious relic out

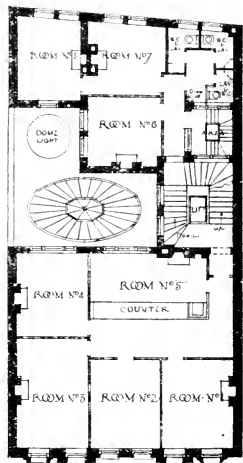
Our Illustrations.

ALLAS BUILDINGS BIRMINGHAM

The building for the Atlas Assurance Company in Birmingham, designed and which is being this year in the Royal Academy.



- GROUND PLAN -



FIRST FLOOR PLAN

ATLAS INSURANCE COMPANY

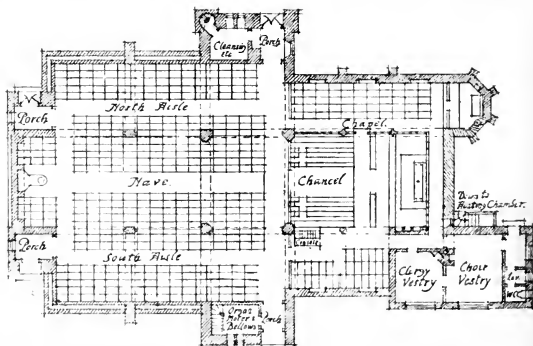
occupies a site in Chancery row. It has a frontage of 367' 6 in., and the site is 767'. It is deep 100 ft. back of the front. The company are intended to build a new five-story office and ground floor offices. The upper part of the building being planned for letting in suites of offices. The front is to be faced throughout in Portland stone. Mr. W. Fishup, of King's Heath, Birmingham, is the selected contractor, the architect being Mr. Paul Waterhouse, of Staple Inn Buildings, High Holborn, W.C.

LADY AGNEW'S HOUSE, SMITH-SQUARE.

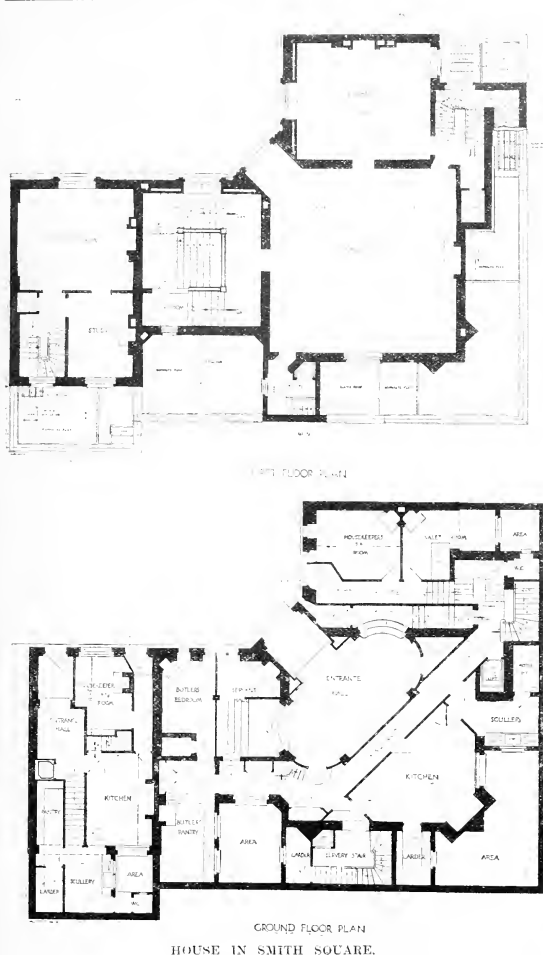
This building, which was erected last year by Messrs. Detmar Blow and Fernand Billerey, in the north-east angle of Smith-square, occupies probably the most awkward site which the Westminster improvements

PROPOSED NEW CHURCH OF SAINT
LUKE, WEST HARTLEPOOL.

This was a limited competition in which Mr. W. D. Carre was assessor. The strictest



ST. LUKE'S CHURCH, HARTLEPOOL.—Messrs. LOFTING and COOPER, Architects.



HOUSE IN SMITH SQUARE.

of the London County Council left vacant. In spite of the extremely narrow frontage of the site in proportion to its area, the architects have been able to plan large rooms—sunny, well lit, and ventilated. The octagonal treatment of the large reception-room on the ground floor, and of the dining-room on the mezzanine ground floor, allowed these rooms, which are 30ft. square, to have a large window towards Smith-square, the advantage of which is increased by the depth of the large arch surrounding it, and forming an ample loggia widely open to the south sun. The number of large rooms provided on this somewhat contracted area is due mostly to their being superposed. The staircase, however, has been so planned that the access to the dining-room above the entrance-hall is hardly felt, as only a few divided steps lead to it, while one would think that the reception-rooms are on the first floor instead

of on the second, where they really are. The treatment of the elevation, which was rendered particularly delicate by the intricacy of the plan, has, moreover, to be simple in design, but the grouping of the large openings required in so small a frontage gives a dignified and restrained feeling. Dutch bricks are used for facings, and a very small amount of Portland stone for the window dressings and cornices. The internal decorations are carried out in harmony with the outside of the building—that is to say, they are plain but effective. The whole of the work was done by Messrs. Wm. Cubitt and Co., of Gray's Inn-road. The drawing is on view at the Royal Academy.

HOUSE AT HARPENDEN.

This is a small house with external walls in stone brickwork with cavity, and externally plastered. Dressings and quoins are in red

bricks, and the roof is of red, glazed, made-ashes. Mr. J. E. D. von Spath is the architect, and his drawing has been reproduced here this year in the Royal Academy.

The Dean of Merioneth, Mr. J. E. D. von Spath, is the architect, and his drawing has been reproduced here this year in the Royal Academy.

The Board of Agriculture has offered £2500 a year towards the salary of an expert adviser in forestry for the Forest Department at a bridge, for which new buildings are to be erected at a cost of £6,550.

The Great Western Land Company Limited, have just placed a contract amounting to £13,000 for making the roads and footways throughout their Liphrope estate, near Hanwell, bringing the total expenditure under this heading to more than £17,500.

At Wilms Town Hall the other day, Mr. R. G. Hetherington, A.M. Inst.C.E., held a Local Government Board inquiry into the corporation's application for sanction to borrow £3,000 in respect of the conversion of privies into water-closets. The health committee has taken this matter in hand, and when it is completed necessary property-owners are assisted with part payment if they desire to convert existing privies into the better sanitary condition.

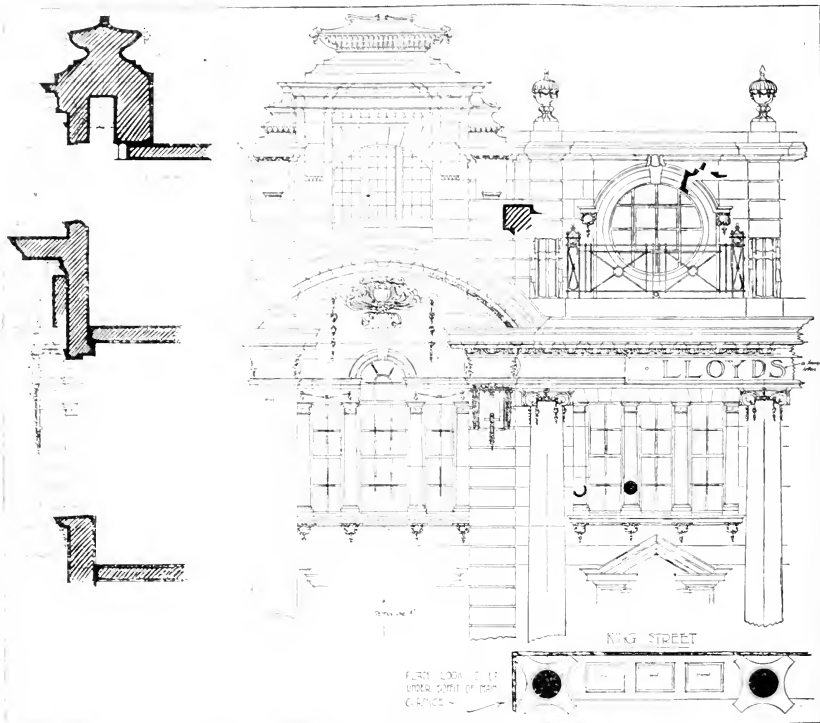
The tender of the Wilms Foundation, L.L., has been adopted for the supply and erection over the River Quaraine, of a railway bridge, composed of nineteen transverse girders through steel spans of 110ft. 6in. each, and eighteen pairs of steel cylinders with concrete filling. The total weight of the bridge complete is about 2,500 tons. This bridge is the first connecting Brazil and Uruguay, the River Quaraine forming the boundary between the two countries.

The Marquis of Bristol states that the scheme for setting up a national memorial to Thomas Gainsborough, the illustrious painter, in his native town of Sudbury, Suffolk, is on the point of completion. The statue the work of Mr. Bertram Mackennal, A.R.A., is in the present exhibition of the Royal Academy. It is to be cast in bronze, and will be placed in its chosen position in Sudbury within a year. The total cost will be about £2,200, towards which the committee raised about £1,850.

The masonry work in connection with the raising of the parapets of the Dean Bridge, Edinburgh, to a uniform height of 4ft. 9in. has been completed. There is still, however, to be added to the parapets a substantial iron crest, about 2in. in height. The tions have been carried out for the corporation from plans by the borough engineer, approved by Sir Rowand Anderson and Professor S. Brown, with a view of preventing persons from throwing themselves over the bridge, while the view is obstructed as little as possible. The contractor for the masonry is Mr. Colin Macandrew, of Edinburgh. The Dean Bridge, designed by Telford, was erected in 1823. Since then it has been the scene of about 180 suicides.

Construction work upon the Kalgoolie-Port Augusta Railway, Western Australia, will be begun shortly. Tenders will be invited shortly for the supply of fishbolts and spikes, points and crossing, and other accessories. The iron goods will be imported, probably to the extent of £1,000,000 worth. For the bridges and culverts rolled-iron joists will be used from 10ft. to 14ft. in span. The Federal railway engineer (Mr. H. Deane) expects that internal-combustion oil locomotives will be adopted, thus effecting a saving of £200,000 on waterworks. Track-laying machines will be used, which will enable at least 20 miles of railway to be laid each day. The laying of the line will be begun from both ends about December next, and it is hoped to complete the work in three or four years.

Mr. Gustav Sachs, of Marlborough-hill, St. John's Wood, and of the Stock Exchange, who died on April 19 at Athens, has left a net gross and £20,888 net, he bequeathed about £500 to various German and Anglo-Jewish hospitals and churches; £2,250, and his leasehold house and effects therein, to his wife. The residue of the property is to be held in trust for his child, or his widow, or his wife for life, and subject thereof one moiety of the whole is to be held in trust for his son, Edwin Otto Sachs, the well-known architect, and his issue, and the other moiety in trust to pay £2,000 to the Jews Free School, Bell-lane, or should his son so desire, £1,500 to the school and £500 for such hospitals in the United Kingdom as he may direct, the residue going to the son and his issue.



LLOYD'S BANK, KING STREET, MANCHESTER. DETAIL OF FACADE.

Messrs. CHARLES HEATHCOTE and SONS, Architects.

LLOYD'S BANK, KING STREET, MANCHESTER. DETAILS OF FACADE.

Last week we gave a perspective view and floor plans of Messrs. Lloyd's Bank buildings about to be erected in King Street, Manchester, from the designs of the architects, Messrs. Charles Heathcote and Sons. The accompanying part of illustrations are selected from the working drawings showing details of King Street front. The girders of the framework are of four courses to flint. The masonry is of Portland stone worked locally. The proposed walls are leaded. The joints of the masonry work are faced with jet black cement. The plans of parts and sections are given in the elevations, and only a few in the drawings. A description accompanied by the numerous already published, as in the case of the other buildings.

CHIPS.

The new sewage disposal works for the rapidly growing borough of Mansfield, were formally opened last week. They are constructed on 28 acres of land between Bath Lane and Old Mill Lane. The scheme provides for screening and dewatering the refuse, precipitating the solids in sedimentation tanks, and the purification of this effluent on continuous flow of percolating filter beds. The scheme was proposed by the late Mr. R. Frank Vallance, borough surveyor of Mansfield, and has been carried out by his successor in office, Mr. M. T. Collins.

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A Whitcombe Church, Dorset, fragments of a fine Saxon or Celtic churchyard cross have been found built into the chancel wall. Mr. S. John Hope, F.S.A., has pronounced the cross unique in Dorset.

At the last meeting of the Berkshire County Council the Highways Committee reported that the Road Board had offered to make an immediate grant of £35,000 and to lend the council a further sum of £24,500, free of interest, to enable them to proceed with the reconstruction of further sections of the Bath and London roads. The offer was accepted.

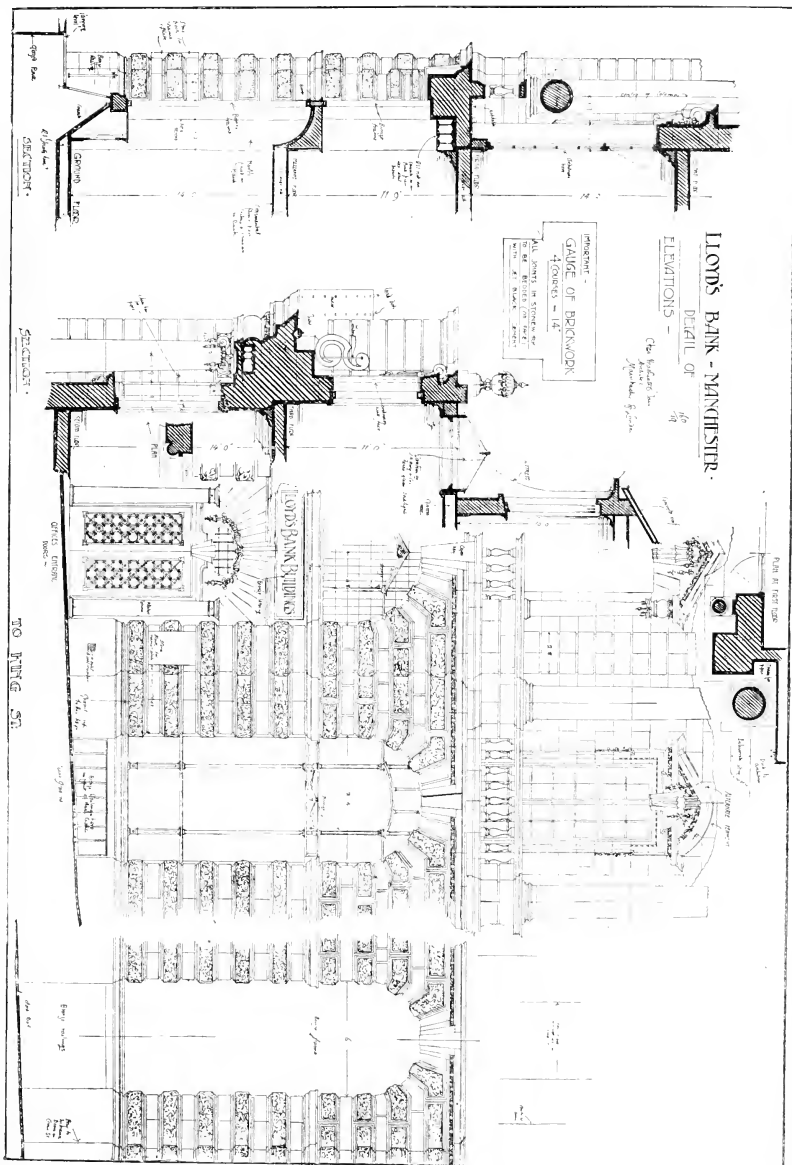
Sir John Benton, K.C.I.E., who has just vacated the post of Inspector General of Irrigation in India, after a term of six years, leaves a record extending over thirty-eight years of distinguished service behind him. Sir John entered Cooper's Hall in 1871, going out to India in 1873, having qualified as an assistant engineer for the public service in two instead of the usual three years. He was posted to the Irrigation Branch of the Punjab, and has carried out an extensive system of canals in that province.

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Two pictures, which have been on loan to the National Gallery since June, 1911, have been presented by Mr. J. C. J. Drucker, and are permanently hung in Room XXIV: "Woudrichem," by Th. de Roock; "Montmartre," by Matthew Maris; and "Ducks," by M. Maris.

Due to the lack of sufficient wharves and harbour accommodation at Syracuse, and to the increasing traffic as a result of the annexation of Tripoli and Cyrenaica, the Italian Government have under consideration a project and estimates for the carrying out of extensive harbour improvements, and the construction of a new railway-station, customhouse, and post office for sorting letters, etc., arriving from Tripoli. There are also projects for harbour improvements at the Port of Augusta, and during the year 1911 a large area of land near the wharf was levelled for the purpose of being utilised as a depot for coal.

Mr. F. O. Stanford, one of the Local Government Board Inspectors, held an inquiry at the Borough Green Schools, Wrotham, Kent, on Friday relative to an application by the Wrotham Urban District Council for permission to borrow £10,000 for works of sewerage and sewage disposal. Mr. Elliott, the surveyor (who had been assisted in the preparation of the scheme by his brother, the surveyor to the Wigan Urban District Council) outlined his proposals for the drainage of Wrotham, Borough Green, Platt and Basted, with outfall works beyond Basted Mill. It was thus intended to provide for a population of 3,500, while the number now living in the area of 2,180 acres to be dealt with was 3,674. The effluent, after passing through various tanks and beds would run into the river Bourne.



Building Intelligence.

CAMBRIDGE.—The extension of the School of Agriculture Syndicate report that the Vice-Chancellor of the University has been informed by the Treasury that the Legislature have approved of a grant not exceeding £14,500 from the Development Fund for the building and equipment of an extension of the School of Agriculture, chiefly for the accommodation of research institutes in plant-breeding and animal nutrition. Of this sum it is proposed to expend about £3,000 on fittings and equipment, and about £11,500 on the actual building. Having obtained plans from Mr. Arnold Mitchell, F.R.I.B.A., of London, the architect of the School of Agriculture, the Syndicate recommend that as soon as the detailed plans and estimates have been approved by the Board of Agriculture and Fisheries the Vice-Chancellor be authorised to accept Mr. W. Sindall's tender of £13,857 for the extension of the school. The proposed extension follows the design of the present building, and is of the same width; its length is 87ft.

PARK PREWETT.—It was reported to the Hampshire County Council by the asylums committee at the quarterly meeting that the plans for the erection of Park Prewett Asylum received the approval of the Secretary of State on April 3, 1912. The county council, the Epsom-north County Borough Council, and Southampton County Borough Council have submitted applications to the Local Government Board for their sanction to the borrowing of their several shares of the proposed expenditure. Tenders were invited by advertisement for the construction of the foundations of the asylum buildings, and of the railway connecting the site with the system of the Hampshire and South Western Railway Company. Fifteen tenders were received for the foundation works and railway, two tenders for the foundation works alone, and one tender for the railway alone. One tender was rejected on the ground of its not complying with the conditions. The asylum committee decided to accept the lowest of the remaining tenders—that of Messrs. Musciville and Son, of Basingstoke, subject to their giving satisfactory security. The amounts of the tender are £22,050 for the foundation works, and £4,348 for the railway, making £26,398 in all. The report was adopted and the tender accepted as recommended.

EAST HAM.—The new covered swimming-bath which has been erected on a site next the town hall has been formally opened by the mayor. The bath was designed by the late borough engineer, Mr. A. H. Campbell, now city engineer of Edinburgh, and has been erected by direct labour of the council's employees under the supervision of Mr. J. E. W. Birch, the present borough engineer. The cost has been about £9,000. The apparatus for heating the bath has been installed by Messrs. Boyles, Limited, of Irlam, Manchester, and is on the aeration and filtration principle. The bath steam is condensed in a pump is used to heat the water before it re-enters the bath. The steam for driving the pump is obtained from the council's electric station, which is adjacent to the baths. There are three shower-baths, two foot-baths, and a series of seventy-six dressing-boxes. There is seating accommodation for about three hundred persons, formed of concrete tiers, finished off with marble terrazzo. Plans have been prepared for an extension comprising slipper and vapour-baths, and an application has been made to the Local Government Board for sanction to borrow £3,625 to carry out this additional work.

STROUD.—The Duchess of Beaufort opened on Thursday in last week a new school for girls at Stroud. The school is situated in grounds of over three acres at Stroud. The building is in the Georgian style, and is constructed of red-faced brick with Minchinhampton stone dressings, oak cornice and Rosemary tiled roof, surmounted by a dome. Internally the walls have green-glazed tile dadoes, and the whole

of the staircases and the ground and first floors are of fireproof construction. The building is provided with a chimney, heating apparatus, laboratory, and electric heating appliances for airing drying clothes. It has been designed with a view to future extension, and the work has been carried out from the designs and under the supervision of Mr. R. L. Phillips, architect to the Gloucestershire County Council, the builder being Mr. A. S. Cooke, of Pakenhill, Stroud.

WINCHESTER CATHEDRAL.—During the past week donations have been received for the Winchester Cathedral Preservation Fund, which have entirely wiped out the deficit. In all, £113,000 has been raised and spent on the edifice, which is to be reopened in the presence of the King on Monday, July 15, but Canon Braithwaite points out that many other parts of the fabric, including some portions of the roof, are crying out for attention. The whole of the ten new buttresses on the south side of the nave have been finished, and the past week has seen the completion of the great shoring timbers which supported the south wall of the south transept. The difficult work was accomplished without a single mishap, despite the fact that the wall is considerably out of plumb. Extensive supports to this wall have been provided by massive buttresses beneath the library.

PROFESSIONAL AND TRADE SOCIETIES.

THE ROYAL ARCHEOLOGICAL INSTITUTE.—The Institute will hold its summer meeting at Northampton Tuesday, July 23, to the following Wednesday week, and on 31st of that month, with headquarters at the Grand Hotel. The programme is as follows:—Tuesday, July 23.—Reception by the mayor and corporation; the churches of St. Sepulchre, St. Peter, and St. Giles; Eleanor Cross at Hardingstone. Wednesday, July 24.—Rail to Kettering; motor to Montagu's Hospital, Kettering; motor to Boughton House, Kettering; motor to Geddington Church and Cross; motor to Kettering; motor to Rushton Church, Hall, and Lodge; motor to Rothwell Church, Market-house, and Jesus Hospital; motor to Kettering; rail to Northampton. Thursday, July 25.—Members will proceed by train to Rockingham; motor to Liddington Church and Bede House; motor to Rockingham Castle; motor to Kirby; Kirby Hall; motor to Geddington; rail to Northampton. Friday, July 26.—Motor to Brixworth Church; motor to Holdenby House and Church; motor to Northampton; motor to Earl's Barton Church; motor to Castle Ashby; motor to Coghoe Church; motor to Northampton. Saturday, July 27.—Rail to Irthlingborough; motor to Stanwick Church; motor to Rands Church; motor to Higham Ferrers Church, Bede House and College; motor to Rushden Church; rail to Northampton. Monday, July 29.—Rail to Thrapston; motor to Lowick Church; motor to Drayton House; motor to Thrapston; motor to Woodford Church; motor to Irthlingborough Church; rail Higham Ferrers to Northampton. Tuesday, July 30.—Rail to Elton; motor to Fotheringhay Church and Castle; motor to Tansor Church; motor to Oundle; motor to Warrington Church; motor to Polebrook Church; motor to Oundle; rail to Northampton; annual general meeting. Wednesday, July 31.—Rail to Moreton Pinkney; motor to Canons Ashby House and Church; motor to Fawsley Church; motor to Donby; motor to Byfield Church; motor to Chipping Warden Church; motor to Byfield; rail to Northampton.

The death is announced of Mr. Frederick Bonser, who for the last 22 years had acted as manager and chief assistant to Messrs. Leonard and Clarke, quantity surveyors, 107, Bishopsgate, E.C.

The Canadian Railway Commission has ordered the immediate construction in the new joint railway station for the Grand Trunk and Canadian Pacific Railways, which, with the entrances and approach, will cost £1,450,000 sterling.

COMPETITIONS.

TWO WELSH SANATORIA.—Edward VII. Welsh National Memorial Association for the relief of the poor and the Tuberculous in Wales and Monmouth has begun the work of providing institutions in North and South Wales for the treatment of the disease. The association is now inviting applications from architects for the erection of a sanatorium in South Wales with 200 beds and one in North Wales with 150 beds. Particulars may be obtained from the secretary, Welsh National Memorial Office, Newtown, Montgomeryshire.

YAS-CABERRA.—The following premiums have been awarded for design for the Australian Federal capital site at Yas-Caberra. The first, of the value of £1,750, was awarded to Mr. Walter Burley Griffin, Steinway Hall, Chicago; the second, £750, to M. Ebel Saarinen, Helsinki, Finland; the third (£500) to Alfred Agazzi, Ill. rue Eugene Flachet, Paris. Over £100,000 were sent to the architect were made on the recommendation of a majority of six out of three judges. The assessors, appointed by the Minister for Home Affairs, were Mr. John Kirkpatrick, architect; Mr. J. M. Gane, representing the Surveyors' Institute; and Mr. J. A. Smith, president of the Victorian Institute of Engineers. It will be recalled that, on account of the character of the conditions of competition, the Royal Institute of British Architects and all the architectural societies in Australia requested their members not to compete.

The memorial to Archbishop Cranmer in Jesus College Chapel will be unveiled by the Visitor, the Bishop of Ely, on June 13, at 3.15 p.m.

Mr. R. Bruce Savage, assistant surveyor under the Teignmouth Urban District Council, has received an appointment in the surveyor and engineer's department of Devonport Town Council.

The Senate of Durham University propose, at their June Convocation, to confer the honorary degree of D.C.L. upon Mr. W. H. St. John Hope, formerly secretary to the Society of Antiquaries.

Mr. William Squires, chief assistant borough engineer at Warrington, has been appointed engineer and surveyor to the Horbury Urban District Council at a salary of £150 per year. There were eighty-seven applicants.

The town council of Dunfermline has received authority to proceed with its town-planning scheme. The area to be treated is 5,500 acres in extent, and includes all the Rosyth territory that the council has jurisdiction in its application. The scheme is one of the largest which has ever been promulgated, and the first promoted in Scotland.

A meeting of the Sir Alfred Jones Memorial Committee has been held at the town hall, Liverpool, presided over by Lord Derby, who was invited to recommend to the corporation a site at the Pierhead. The memorial, which takes the form of an emblematic group with a medallion of Sir Alfred Jones and two allegorical groups, is being executed by Sir George Frampton, R.A.

The Secretary for Scotland (Mr. McKinnon Wood) will preside at the opening ceremony of the reconstructed National Gallery on Monday next, at noon. Since May last year the gallery has been largely remodelled by the office of Works, from designs by Mr. W. T. Odrieve, F.R.I.B.A., principal architect of H.M. Board of Works for Scotland. The collection, which had been temporarily housed in the Royal Scottish Academy, has been taken back to the gallery, and its rearrangement has now been completed.

A Local Government Board inquiry has been held at Lichfield before Mr. R. G. Hetherington into an application from the Lichfield Rural District Council to borrow £10,120 for works of sewerage and sewage-disposal at Lichfield. Mr. sewerage and sewage-disposal at Lichfield. Mr. Robert Green, M.P. for Birmingham, the engineering member of the scheme, explained that it provided sewers in the built-up portions of the town, and involved the construction of a length of about 1,600 yards of sewer in a deep tunnel, siphon tanks, percolating filters, and other works of purification for a population of 1,000 in the first instance; the works being so arranged as to be economically extended and enlarged.

LEGAL INTELLIGENCE

BUILDING LINES IN SOUTHFIELDS, S.W.—The Tribunal of Appeal under the London Building Acts were to have held a special sitting at the Surveyors' Institution on Friday last, to hear an application by the London County Council that the Tribunal should stay a contract concerning the general lines of buildings in Wimbledon Park-road and Augustus-st., which were the subject of a recent appeal. It has, however, been decided to postpone the hearing of this application until June 5.

THEATRE CONSTRUCTION AND LEGAL SEQUEL—BUILDERS' SUBSTANTIAL S.C. CASES.—Mr. M. Muir-Mackenzie, High Court Official Referee, gave a considered judgment on May 23, in an action in which Messrs. Archibald D. Dawney and Sons, Ltd., engineers, of Battersea, claimed £200,000—£90,000, balance of an account due from the defendant, Mr. J. B. Mulholland, for steel construction works executed at Wimbledon Theatre, of which Mr. Mulholland was the proprietor. The plaintiffs had credited the defendant with £1,000 odd in 1904, balance of an account due from the defendant, Mr. J. B. Mulholland, admitted the claim, but pleaded that the work which the plaintiffs contracted to do should have been completed by June 1, 1910, and that it was not finished till a later date, and that it was under the contract between the parties he was entitled to £25 a day as penalties for that period. Mr. Mulholland, in an alternative claim, for undelivered damages, claimed that he had been prevented from conducting his business in the autumn season, and that he had suffered loss owing to the delay. He had also contended that his Christmas pantomime of 1910 had been prevented by the plaintiffs' delay. The plaintiffs, on the other hand, disclaimed any responsibility for any delay, if any, and said they had not been furnished with adequate setting-out plans, and that they had, in making designs, to comply with the instructions at intervals on behalf of Mr. Mulholland. Plaintiffs' advocate, Mr. Mowley Sharp, presented the building owner, Mr. Bertie Crewe, an architect specialising in theatre work, was amongst the many witnesses called on behalf of the plaintiffs, whose contributions he upheld. He declared in evidence that it was usual to give steel-work engineers a full set of plans of all the tiers to begin with. They invariably included the structural details. Steel constructional engineers could not set about their work properly without correct plans. Mr. Mulholland, in the witness-box, when examined by Mr. Denqueur, stated that the plaintiffs' representations to him, from the outset, impressed upon him the importance of time. He alleged that the plaintiffs gave him no indications that there would be delay which could not be attributed to the architect. Mr. Denqueur said that Mr. Mulholland said he would not call the architect his "creator." He thought, however, that an architect should act in conjunction with the building owner, and his architect had had to do that. Mr. Randolph was proceeding with a further question in that connection, when Mr. Muir-Mackenzie said that the architect was in a certain measure agent for the building owner. Under certain matters he had to act impartially between the building owner and the architect. Mr. Randolph asked Mr. Mulholland if it were his suggestion that plaintiffs had deliberately acted in order to make more out of the contract. Mr. Mulholland: I should not like to say that I consider they were doing so. I was economising.—Mr. Randolph: Trying to do the best they could?—Put it like that if you like, but not for me. (Laughter.) Mr. Randolph: I am sure they were trying to do the best they could in your interest. Throughout the plaintiffs are objecting to be saddled with the delay. You said, "You are delating," and they said, "The delay is not ours, and you cannot complain. You must impose penalties." Witness: In some of their letters they apologise for the delay. Subsequently, however, Mr. Mulholland admitted that the plaintiffs repudiated responsibility. Mr. Cecil Albary Massey, an architect, called for evidence. He was chief assistant to Mr. Bertie Crewe, and when with him a man witness undertook sole responsibility in connection with the carrying out of plans for numerous theatres. In March, 1910, witness was engaged to help in the construction of the Wimbledon Theatre project. He thought that plaintiffs had been provided with adequate plans and data. Plaintiffs had, he said, not complained to him verbally of the absence of complete plans, but witness, on the other hand, had had to complain to Messrs. Dawney of the slow

way details were coming in. In answer to the Official Referee, the witness said that in letters he had written to the plaintiffs during the progress of the work he had not reminded them that they were incurring penalties of £25 a day. It had not occurred to him to do so. Mr. Muir-Mackenzie said that the official referee was to be that if Messrs. Dawney knew that they were incurring penalties amounting to £175 a week, they might perhaps have not regarded the contract as an over-profitable one. Mr. Robert Alexander Briggs, partner in the iron works, Frank Matham and Co., architects, who have designed over 150 theatres, said he regarded the plans prepared by Mr. Massey as sufficient to enable Messrs. Dawney to prepare their details for their own scheme. The roof at the outset was the only weak part, but he had seen pencilled additions.—Mr. Denqueur: What is the best order of erecting this steel-work in a theatre?—From an architect's point of view, the proper way to put the steel-work up is to follow the building up. Put the ironwork in as you go up. Engineers prefer that they should fix their roof, then their gallery, and then their circle. It is easier for them. Henry Smith, architect, who directed the erection on behalf of the defendant's case. Following the evidence and arguments during a protracted hearing, Mr. Muir-Mackenzie reserved judgment on May 13. He delivered it on May 23. After an interval of two days, he gave his decision. He claims, Mr. Muir-Mackenzie said he thought he would be doing his duty if he adopted what Mr. Bertie Crewe had said in the course of his evidence, to the effect that he considered there had been a delay, and that the work which the plaintiffs should have been completed about three weeks earlier than it was completed. In the circumstances, he decided to award defendant costs for unmitigated damages on the counter-claim. The cost of the defendant's case, the plaintiffs in the claim for £230,000, 10s., and judgment for the defendant on the counter-claim for £500. He thought the counter-claim was very much exaggerated, and to a great extent had failed, and accordingly the defendant would have only one-third of the costs of the counter-claim. Plaintiffs would have the whole of the costs of the action.

ARCHITECTS' FEES. (W. DOW & T. BAYLI.) In the Scottish Outer House of Session, before Lord Macnaghten, a judgment was given in an action by William Dow, architect, and engineer, 232, High-street, Kircaldy, against Thomas Bayli, hotel-keeper, Stag's Head Hotel, South Queensferry, for £44 15s. in respect of fees for professional service and preparation of plans for a proposed reconstruction of the Stag's Head Hotel. The defender denied the employment. Lord Dewar, without calling on counsel for the pursuer, gave decree for £64, and expenses. The pursuer's counsel, Mr. J. Macdonald, counsel for the defender, on having led evidence in a most difficult case in an exceedingly able manner. Despite all that, his lordship said he had formed a clear impression that the pursuer's case was his case, which was that he did enter into a contract with the defender. His Lordship believed what the pursuer said; but he regretted to say he could not place the same reliance upon what the defender said. He was satisfied that the defender had not succeeded in making out the pursuer's undertaking to do the work gratuitously. He had come to the conclusion that the pursuer must prevail; and as counsel for the defender had, very prudently and wisely, and in order to save the expense of a further inquiry, agreed if there was liability £64 was the correct sum, he would give decree for that sum, with expenses.

FEARS OF HORNSLAW DESTROYER COMPANY. (H. G. GANANCY.) Division on May 23, 2nd, 1912. Bank applied to Mr. Justice Joyce for the appointment of a receiver and manager of the Hornslaw Destructor Company (Limited), which manufactures machines for destruction at Pershore, Worcestershire. Mr. Justice Joyce said that the bank was the holders of a debenture for £10,000. The respondent company was not a losing concern. It made a profit of £4,500 last year, and had several contracts in hand; but, by reason of a Court judgment which had gone against it recently, it was in financial difficulties. There was no opposition, and his lordship appointed a receiver and manager as asked.

A CARDIFF ARBITRATION. Mr. H. P. V. Boulnois, M.Inst.C.E., has given his award in the case of "Whitey and Co., Ltd., v. Cardiff Coalfield." The arbitration was caused by a dispute between the parties after the completion of the western outfall sewer. Messrs. Whitey and Co., the contractors, claimed over £53,000 extra on their contract, and the arbitration occupied 12 days in hearing. The arbitrator in his

written judgment, on grounds for delay the sum of £46,361 8s. 8d., for extra bills—£27,774 7s. 6d., for tunnelling, £29,742 10s. 2d., and for the miscellaneous items—£47,334 17s. 7d., making a total of £283,212 18s. 11d. Thus, to the contractors under the terms of the contract, the contractors have already been paid £58,650. The arbitrator must therefore pay to the contractors the additional sum of £15,162 18s. 11d. The contractors are ordered to pay to the contractors one-third of the taxed costs incurred in the arbitration, and must bear their own costs. The cost of arbitration will be borne in equal shares by the contractors and the corporation.

BOYD AND FORREST V. GLASGOW AND SOUTH-WESTERN RAILWAY COMPANY.—The House of Lords gave judgment on the 15th inst. in an appeal by the Glasgow and South-Western Railway Company arising out of a claim against them by Messrs. Boyd and Forrest, contractors, of Kilmarnock, for £106,090. The contractors undertook the construction of the Dalry and North Glasgow Railway, and the widening of the line between Dalry and Sansum Junctions for £243,000, with extras. It was alleged by the contractors that they were misled as to the nature of the work, and that the contract would pass by his presentation to them by the appellants' engineer. At the conclusion of the work the contractors claimed to set aside the contract, and be paid on a "quantum meruit" basis for the work, of which they claimed damages. The company paid during the course of the work the sum of £271,970, but the contractors claimed that in addition to this sum they were entitled to recover additional remuneration. The House of Lords, in a judgment that the contract is had a right to be set aside, left the amount to be ascertained. Lord Atkinson said he was wholly unable to take the view that the contractor had been guilty of a reckless error. The earlier houses of the court was stating in the judgment of the first instance conveyed to him by the Lords, and the change he made in the entry was for the very purpose of stating that the house of the court was to be their misdescription. The House of Lords actually found, so that the judgment might set forth the truth. The respondents had failed to prove fraud of any kind, and therefore the railway company's appeal should be allowed. Lord Macnaghten and Shaw concurred. The Lord Chancellor said the House had only dealt with the question of alleged fraud, leaving other questions, which parties open, if it was considered necessary to open other litigation.

The Skeehers-Lane Urban District Council, Lincolnshire, have instructed Messrs. Taylor and Wallis, Mr. Harry W. Taylor, A.M.I.C.E., of Newcastle-upon-Tyne, and Birmingham, to thoroughly investigate the existing system of sewers and sewage-disposal works, and to advise generally upon the construction of an up-to-date scheme.

The Southampton Corporation yesterday held a last meeting of a committee of the joint Parliamentary and water committee on the question of extending and augmenting the supply of water to the borough. The committee stated that they had been advised by Mr. W. Wintaker, F.R.S., and Mr. Horace B. Woodward, who had recommended the corporation to purchase certain fields adjoining the waterworks at Otterburne for £2,500. The report was adopted, and the waterworks engineer was instructed as soon as possible to make a boring and report.

A vigorous effort is being made to secure funds for the completion of the new St. Mary's Cathedral Church of St. Mary in Edinburgh by the addition of the twin western spires, as a memorial to the Misses Walker, munificent donors to the building fund. At a meeting of the central committee of the cathedral, which was held over by the Earl of Mar and Kellie, it was reported by the secretary and treasurer, Mr. Hope Gill, C.A., that the total amount raised on promises made for the building of the spires was £37,500, and £18,500 was still required. It was resolved to issue a general appeal for further aid.

The Board of Estimate of New York ratified, on Friday, the agreement with the Ingham and Brooklyn Rapid Transit Companies of a new agreement, that formally committing the city to the largest municipal transit project ever undertaken anywhere, involving an expenditure of about £24,800,000 sterling by the City alone in the next five years, and approximately £34,000,000 sterling by the private companies in sharing in the dual subway system. The contracts for the construction and operation of the new subways have yet to be adopted by the Public Service Commission and the Board of Estimate.

entirely artificial, and extensive cuttings were made, with a view to discovering its contents. Near the surface were found fortifications of Seleucid origin, and lower down the Roman and Greek periods were represented. One Roman building, complete except for its roof, was uncovered, and at a depth of 16ft. to 20ft. Hittite remains were just reached. Even 40ft. below the surface Hittite buildings were discovered, the latter being about B.C. 1500, while the higher level was about about B.C. 600. The Hittite houses of the 18th Dynasty which were unearthed had been obviously destroyed by fire. In the diggings the explorers clearly traced wooden verandahs and roofs which had fallen between the still remaining walls and trenches. In the mound were fortifications of various ages belonging to two distinct Hittite periods. In a smaller mound near by was a royal palace surrounded by a fortified stone wall. As a result of the excavations the plan of the Royal City was recovered, and some new sculptures found. The expedition next explored the whole valley from Marash to beyond Antioch, and located the royal cities of four or five petty kingdoms situated in the Taurus range, and to Merot, the ancient capital of Ethiopia, to resume his work of the previous year. He succeeded in tracing out the walls of the royal city, which was about 1,600ft. in length. These walls were 16ft. thick, and at one time 30ft. to 40ft. high. Two special discoveries were made, one a small Roman Temple, and the other the royal baths attached to one of the palaces. Not only had the buildings themselves been of considerable proportion, but in the excavations were considerable pieces of statuary of varied character, which at one time adorned its corridors and niches. In particular, a swimming bath, which was opened, had been subsequently largely filled up with statues or portions of them, for the sole purpose, it would seem, of serving as a foundation for walls subsequently built over the spot. These fragments and the medallions, frescoes, glazed ornaments, tiles, and other decorations with which the bath had been adorned contribute unique information concerning the splendours of that ancient barbaric monarchy in Central Asia.

Visitors to and residents of Boscombe are at last to have free and open access to the cliff frontage, which has never before been available to the public. The part of the seaboard between the existing cliff pleasure gardens, to the east of the pier, and the Fisherman's Walk, at Pokesdown, was enclosed when the late Sir Percy Shelley settled there over sixty years ago, and built the Boscombe Manor House. Gradually a small part of the frontage came into the market, and the Boscombe Cliff Pleasure Gardens were laid out by the corporation, but it was not until last year, when Lord Abinger disposed of the Manor House estate for £70,000, that the cliff tops came into the possession of the Bournemouth Corporation. Lord Abinger, prior to selling the estate, made a deed of gift handing over the cliff front to the corporation, on condition that a cliff drive was made and the cliff tops suitably laid out. This work the corporation are now carrying out at a cost of £9,000. The Bournemouth Corporation are also spending £65,000 in making available by the public the land near the Fisherman's Walk. Lord Portman has also agreed to hand over the cliff top for the purpose of completing the drive all along the front from the Boscombe Manor House to the three corners of a mile to the length of the promenade, which will thus be two miles in length.

At a meeting of the Freshman Rural District Council on Saturday there was further discussion as to the Broadway housing problem. The parish appealed to the district council to erect cottages under the Housing Act, and the council passed a scheme for erecting sixty cottages. Strong opinion has since been expressed by parishioners that the cottages will be insufficient. The architects, Messrs. Dicks and Waldron, of Market Place, Evesham, wrote saying they estimated that the extra cost of building thirty cottages now and thirty later would be not less than £900 or £1,000, in addition to the interest on half the cost of the

land, roads, and sewers. The Local Government Board wrote stating that they were prepared to approve the plans for the cottages, subject to suitable tenders being obtained. It was agreed to invite tenders for the erection of thirty and sixty cottages.

The Birkenhead Board of Guardians appointed on Monday Mr. A. L. Ryde, surveyor, of Parliament-street, Westminster, to value the property of the Mersey Docks and Harbour Board in the parishes of Birkenhead and Wallasey for rateable purposes. This decision is in accordance with a resolution passed recently by the board to co-operate with the West Derby Union, the parish of Liverpool, and the township of Toxteth Park to obtain an independent valuation of the whole estate under the control of the Mersey Docks and Harbour Board. The inclusive fee to be paid Mr. Ryde is 2,500 guineas.

The strike of the tailors having run its course, we are pleased, from experience, to direct the attention of our readers to the announcement of Messrs. W. Evans and Co., of 287, Regent-street, which appears on another page. The advertised suit is so often a certainty of something cheap and made of shoddy, that it is really a boon to find a tailor like Mr. Evans who combines good style with first-class material, reasonable prices, and an experience of thirty years. Our readers, whether architects, assistants, builders, or surveyors, may safely go to Messrs. W. Evans and Co. with the knowledge that their personal requirements will be intelligently studied in every particular, good wear guaranteed, and moderate prices charged.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Surveyors' Institution. Country Meeting at Nottingham.

Junior Institution of Engineers. "Standardisation of Engineering Catalogues," by H. J. W. Wood, 23, Victoria-street, S.W. 8 p.m.

SATURDAY (To-morrow).—St. Paul's Ecological Society. Visit to Eton College. Train from Paddington to Windsor 2.15 p.m.

MONDAY.—Royal Institute of British Architects. The Responsibilities of Architects and the Case of Henry Walden, by William Woodward, F.R.I.B.A. 8 p.m.

WEDNESDAY.—Institution of Municipal Engineers. Visit to Showroom and Works, Donlon and Co., Ltd., Albert Embankment. 2.30 p.m.

THURSDAY.—Institution of Water Engineers. Summer Meeting at Cheltenham.

SATURDAY JUNE 8.—Association of Managers of Sewage Disposal Works. Meeting at Glasgow.

Mr. Alfred Haller Kendall, of The Grange, Clibwick High-road, Gurnersbury, surveyor, who died October 27 last, left by his will the gross value of £10,826 17s. 3d., of which the net personalty has been sworn at £3,841 14s. 10d.

Sacerdotes and other additions are about to be made to the Roman Catholic Cathedral at Ballaghadereen for the Bishop of Achonry. The architects are Messrs. W. H. Byrne and S. J. Miller, and they are also charged with the work of repair and renovation to the Roman Catholic Cathedral at Ballina for the Bishop of Killala.

Memorial stones were laid on Monday of the Primitive Methodist Church Buildings to be erected at Pailton, Sunderland. The whole scheme consists of a church, Sunday-school, and halls, but at present it is proposed only to erect the school, hall, infants' room, and Christian Endeavour hall, leaving the church and vestries till later. The immediate total outlay, after the cost of the land, is estimated at £1,000.

An Imperial Commission has been appointed by the German Government, and composed of four noted Germans, who will visit the United States for the purpose of studying art, architecture, the museums, libraries, and similar institutions and activities in relation to other American cities. Composing the Royal Commission are Dr. Curt von Podewils-Diernitz, Dr. von Borscht, Lord Mayor of Munich, Dr. Oscar Miller, and Dr. Walter Van Dyke. One particular object of the Commission will be to seek ideas for a library building which the Museum of Natural Science and Technik at Munich is about to build.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up in a judicious and sensible manner, and claims upon the space allotted to correspondence.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, &c., should be addressed to the EDITOR of the BUILDING NEWS, Edinburgh House, 1, Abchurch-lane, Strand, W.C., and not to members of the staff by whom they are possibly being forwarded. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unauthorised contributions.

* Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. All more commonplace subjects—small churches, chapels, houses, &c., we have usually far more sent than we can insert, but are glad to do so when space permits on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time erected.

Cheques and Post-office orders to be made payable to THE STRAID NEWSPAPERS COMPANY, LIMITED, and crossed London County and Westminster Bank.

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* The special rate to Canada is £1 1s. 6d.—\$10.00, 27s. for 12 months, and 10s. 10d.—\$10.00, six months.

* Our Direct Subscriptions for Australia are Messrs. Jagger and Kibberville, Printers and Publishers, 101, York Buildings, 105, Liverpool-street, Sydney, New South Wales, who will receive Subscriptions at £1 6s. per annum on our account. Copies of the paper will be sent by us direct to the subscribers' addresses.

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The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

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The charge for advertisements for Situations Vacant or for Situations Wanted and Partnerships is 1s. per line of Eight Words, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

Rates for Trade Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* Replies to advertisements can be received at the Office, Edinburgh House, 1, Abchurch-lane, Strand, W.C., from 10 a.m. to 6 p.m. H to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

RECEIVED.—B. T. E.—H. and B.—I. C. S.—W. N. F. and Sons, Ltd.—H. B.—P. and Co., Ltd.—C. M. and Co., Ltd.—W. B. L. M. and Co., Ltd.—S. H. S. and Co., Ltd.—S. K. E. and Co.—L. G. and Co.—W. E. W.—G. W. E. S.—P. C. D.—C. E. L. M.—N. W. M.—A. P. M. and Co.

VINCENT.—YES.

M. S. A.—Please send.

CORRECTIONS.—Sorry! but mention of all was impossible. SWELL.—There is only one thing to do with the slippery stairs—steps—viz., to redress the surfaces.

A YOUNG ARCHITECT.—Requests to past candidates of that sort do not come within the scope of "Intercommunication."

T. and S.—A couple of pages about centring for Gothic vaulting were given in "Intercommunication" in our issue of Dec. 22 last. Quoters might really look up indices of recent vols. before sending.

J. R.—For your purpose nothing would be better than the Deane and Deane's system, in conjunction with Claridge's asphalt. (Get the little booklet, issued by Claridge's Asphalt Co., we reviewed last week.)

BREWER BROS.—We cannot say if the chimneys are satisfactory or not. We should certainly prefer bells. Cannot a good firm like John Warner and Sons, Ltd., Spelman-street, N.E., or Jas. Barwell, Birmingham.

"BUILDING NEWS" DESIGNING CLUB.

DEARINGS.—RECEIVED.—"Black Diamond" and "Vertiges."

English Sheet Glass:	16oz.	21oz.	26oz.	32oz.
Fourths	1d. ...	2d. ...	3d. ...	4d.
Thirds	2d. ...	3d. ...	4d. ...	5d.
Fluted Sheet	2d. ...	3d. ...	6d. ...	8d.
Hartley's English Rolled Plate:	1in.	$\frac{3}{16}$ in.	1in.	
	2d.	2d. ...	3d.	
Figured Rolled, and Repoussé:		White.	Tinted.	
		3d.	6d.	

VARNISHES, &c.		Per gallon.
Fine Pale Oak Varnish	.....	\$20 8 0
Pale Copal Oak	.....	10 0 0
Superfine Pale Elastic Oak	.....	12 6 0
Fine Extra Hard Church Oak	.....	10 0 0
Superfine Pale Elastic Oak, for use of Church	.....	11 0 0
Fine Elastic Carriage	.....	12 6 0
Superfine Pale Elastic Carriage	.....	16 0 0
Superfine Pale Elastic Copal	.....	12 6 0
Finest Pale Durable Copal	.....	18 0 0
Extra Pale French Oil	.....	1 1 0
Eggshell Finting Varnish	.....	16 0 0
Pale Copal Shell Varnish	.....	4 0 0
Extra Pale Paper	.....	12 6 0
Best Japan Gold Size	.....	10 0 0
Best Black Japan	.....	10 0 0
Oak and Masticatory Stain	.....	9 0 0
Brunswick Black	.....	8 0 0
Berlin Black	.....	16 0 0
Cresting	.....	10 0 0
French and Brush Polish	.....	10 0 0

Trade News.

WAGES MOVEMENTS

LIVERPOOL FURNISHING TRADE. Two thousand Liverpool workers, members of the National Amalgamated Furnishing Trades Association, were locked out on Friday as the outcome of a dispute with glassworkers who form one of their branches. In response to a thrust of the Glassworkers' Union to call out other branches, the masters closed down their works to union men. Apprentices and non-union men were not employed. The demand included increased wages, reduced hours, no overtime, and that no worker shall be discharged without the sanction of his trade-union official.

TRADE NOTES

The extensions to the Royal Infirmary, Bristol, are being supplied with Sherrin's double-fronted patent Manchester stoves in defiance and with descending smoke-flues by Messrs. E. H. Shorland and Brother, Ltd., of Edgworth, Manchester.

Under the direction of Messrs. Jellay and Lacey, architects, Ashford, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air pump" ventilators and air inlets, has been applied to Wye College, Ashford, Kent.

At North Meols, Southport, a new parsonage hall has been opened by the Bishop of Liverpool. The new building, which stands on the site of the old parsonage hall, has been erected at a cost of £1,250.

The extension of the county hall at Wakefield is now being proceeded with, and the estimated cost is \$32,000. The object of the extension is to provide accommodation for all the clerk under one roof.

It is proposed to hold in Bristol in 1913 an exhibition of the building, furnishing, and house-planning trades and interests. The promoter is Mr. Chas. Howcs, Centre Chambers Bristol, who will be pleased to furnish all particulars.

Under the provisions of the Housing and Town Planning Act, the Gimsley Urban Council have decided to inform the owner of twenty five houses of certain defects, and resolved that at the next meeting they would consider the question of making closing orders.

The foundation-stone of the new Roman Catholic Church of Our Lady of Sorrows in Desborough and Cirencester Streets, off the Harrow-road, was laid by Cardinal Bourne last week. The church will be a plain building with sanctuary arch, with accommodation for 400.

The new church of St. Gabriel, Sunderland, erected at a cost of £11,200, and built to accommodate a congregation of 850, has been consecrated by the Bishop of Durham. It is Late Perpendicular in style, and consists of six bays with shallow quasi transepts all under one roof. At the junction of nave and south transept is an octagonal bell-turret.

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TENDERS

. Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

AREBYCH.—For erecting a school, for the Pembroke-shire Education Authority. Mr. O. T. Thomas, 2 Victoria-place, Haverfordwest, architect. Quantities by Mr. G. A. Webster, 12, Gray's Inn-square, W.C. :—

Lloyd, E., & Co., Milford Haven	£2,420 0 0
Cole & Sons, Milford Haven	2,597 0 0
Barries, T. Newland (accepted)	1,525 0 0

Brinton, S. W.,—For the erection on the Ray site, of a school for the 155 physically defective children, for the London Education Committee.	£	125	0	0
Parker and Sons, Ltd.,—For the supply of 100 Triggs and Co. Clapham	£	6	13	0
Garrett, J., and Son, Fulham, Hail Street, and Sons, Ltd.,—South Norwood	£	6	25	0
Downs, W., Walworth Road	£	0	19	0
Parry, J. and Sons, Lambeth	£	0	10	0
Parfick, J. and M., Wandsworth	£	0	10	0
Rice and Son, Stockwell road	£	0	7	6
Smith, D., Deptford	£	0	7	6
Smith, W., A. Son, Barleyfold-road, Faversham, and C., Ltd., Upper Norwood	£	0	6	0
Lisle and Co., Chelsea	£	0	5	7
Lawrence, E., and Sons, Ltd., Upper Norwood	£	0	5	0
Johnson, W. and Co., Ltd., Wandsworth Common	£	0	4	7
Archibald, J., Lambeth	£	0	4	0
* Recommended for acceptance.				

CAMBERWELL, S.E.—For rebuilding the schools in
Leipside-road, Camberwell-road, for the London Edu-
cation Committee.—

Allen, J. S., Sons, Ltd., Frampton		
Works, Kilburn		£19,419 0 0
King, W., and Son, Vauxhall		
Bridge-road	15,557	5 0
Ward, J. J., Wandsworth	15,593	0 0
Putnam and Fotheringham, Ltd.,		
Islington	17,758	5 0
Smyth, W., and Son, Ellen Works,		
Harleyford road	17,768	0 0
Wall, C. Ltd., Fenchurch-street	17,796	5 0
Ward, J. J., and Son, Cornhill		
Works, Southwark Park	17,741	0 0
Towne, W., Walworth	17,447	0 0
Ward, J. J., and Son, Walworth	17,425	0 0
Godson, G. and Son, Peckham		
Works, Kilburn	16,658	0 0
Johnson, W., and Co., Ltd.,		
Wardsworth Common	16,944	0 0
Holloway, H. L., Deptford	16,749	0 0
Deane and Co., Ltd., Upper		
Norwood	16,379	0 0
Holliday and Greenwood, Ltd.,		
Deptford	16,375	0 0
Lawrence, E., and Sons, Ltd.,		
City-road	16,302	0 0
Long, T. B., Evelyn, D. and Co.,		
City-road	16,302	0 0
Architect's estimate, £16,378.		

CAMBRIDGE.—For the extension of the School of Agriculture, for the University Syndicate. Mr. Arnold B. Mitchell, F.R.I.B.A., architect:—
Sundall, W. £10,957 0 0
(Recommended for acceptance.)

CLATTERBURY.—For erecting children's home at additions to workhouse, for Wirral Union Guardians Messrs. J. and H. Davies and Son, 14, Newgate-street Chester, architects. Quantities by the architects—		
Davies & Gasbell, Birkenhead ..	£	3,514 0
James Henry, Birkenhead ..	£	3,514 0
Rothwell, P., Birkenhead ..	£	3,460 0
Lee, J., & Son, Bebbington ..	£	3,448 0
Fleming, A., Neston ..	£	3,379 9 6
Ford, W., & Co., Ltd., Birkenhead ..	£	3,324 10
Fleming, W., & Co., Neston ..	£	3,299 0
Howler, J., Little Sutton ..	£	3,274 18 0
Linekar, S., Huydale ..	£	3,193 11 0

CROSSNESS, S.E.—For the supply, delivery, and erection of boilers and superheaters required in connection with the enlargement of Crossness pumping-station, for the

London County Council:—		
Wilson, W., and Co., Glasgow ...	£3,748	9 0
Yates & Thom, Ltd., Blackburn ...	3,663	0 0
Adams, D., and Co., Duxfield	3,475	0 0
Spurr, Inman, & Co., Ltd., Wakefield ...	3,440	0 0
Gillways, Ltd., Manchester*	3,221	0 0

DONCASTER.—For erecting Liberal club. Messrs. Garside and Pennington, Pontefract, architects. Q 113
titles by the architects:—

DUNDALK. — For electric lighting installation at Dundalk town hall, for the urban district council:—

Gaskin Bros.	255	0	0
Meldon, J. C., and Co.	125	0	0
Watters, P. J.	124	11	0
Gowdy, J. M., and Co.	123	8	0
Callaghan, E. (estimated)	80	10	0

DUNBAR, SOMERSET. — For building a cistern and providing fittings at the parish well —
Clements, H., jun. (accepted).

DUNFERMLINE.—For carrying off the second section of the main drainage of Dunfermline and Rosyth, the distance from Jamestown to Primrose, for the town council :—

shanks and McEwan, St. Vincent-
street, (Glasgow accepted) . 435,786 4 2

ELTHAM, S.E.—For the erection of four new hostels for
residence of 10 students each and a correspondence

accommodate 20 students each, and a corresponding enlargement of the existing Southwood House hostel, and the Avery-hill Training College, for the London Education Committee:—

Miles W. and Sons	Blackheath	£50,119	7	0
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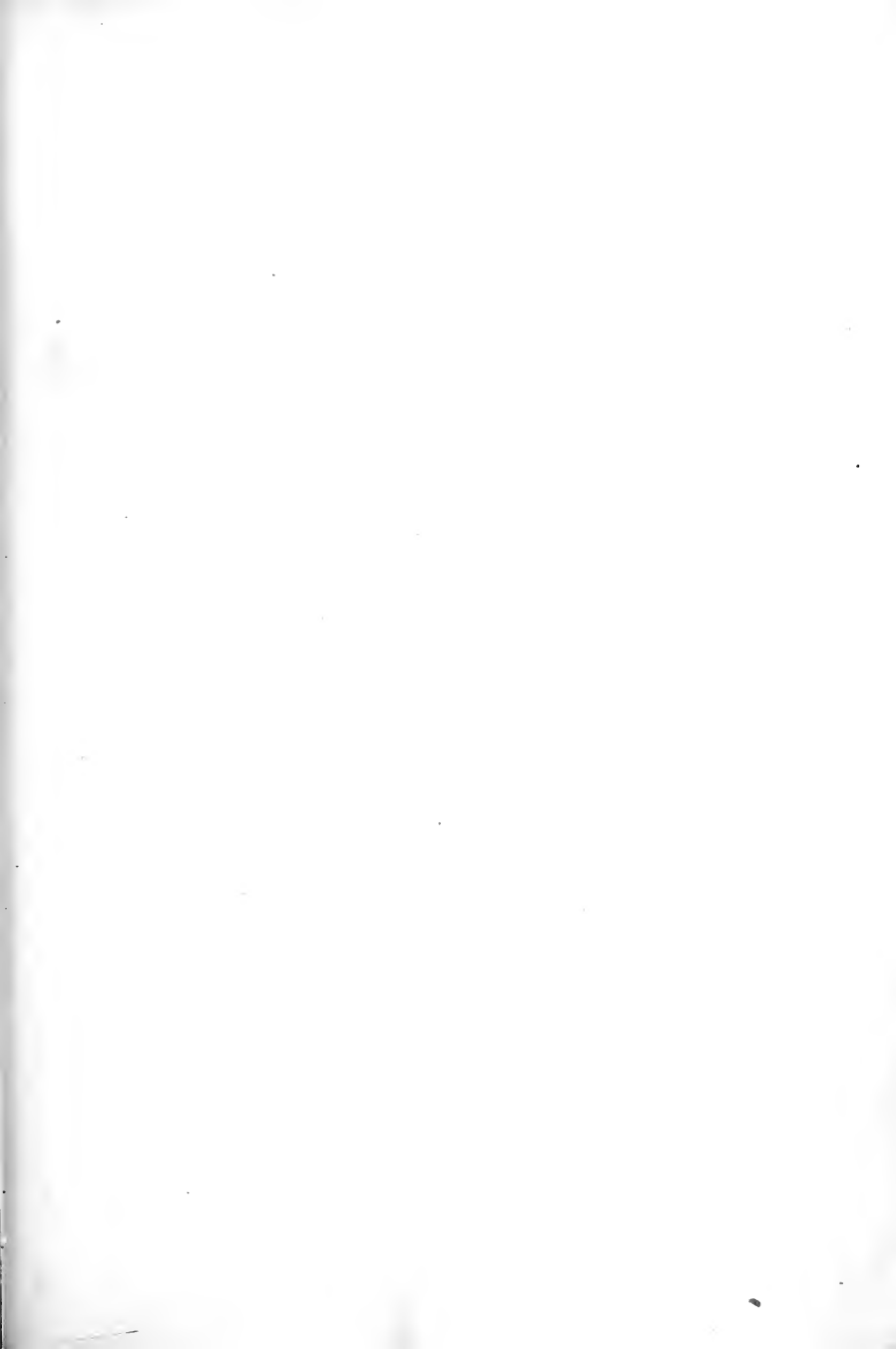
Proctor, E., and Sons, Plumstead	45,566	10	9
Lawrance, E., & Sons, Ltd., City-road	44,504	0	0
(Rossley, T., and Son, Bromley	44,245	0	0

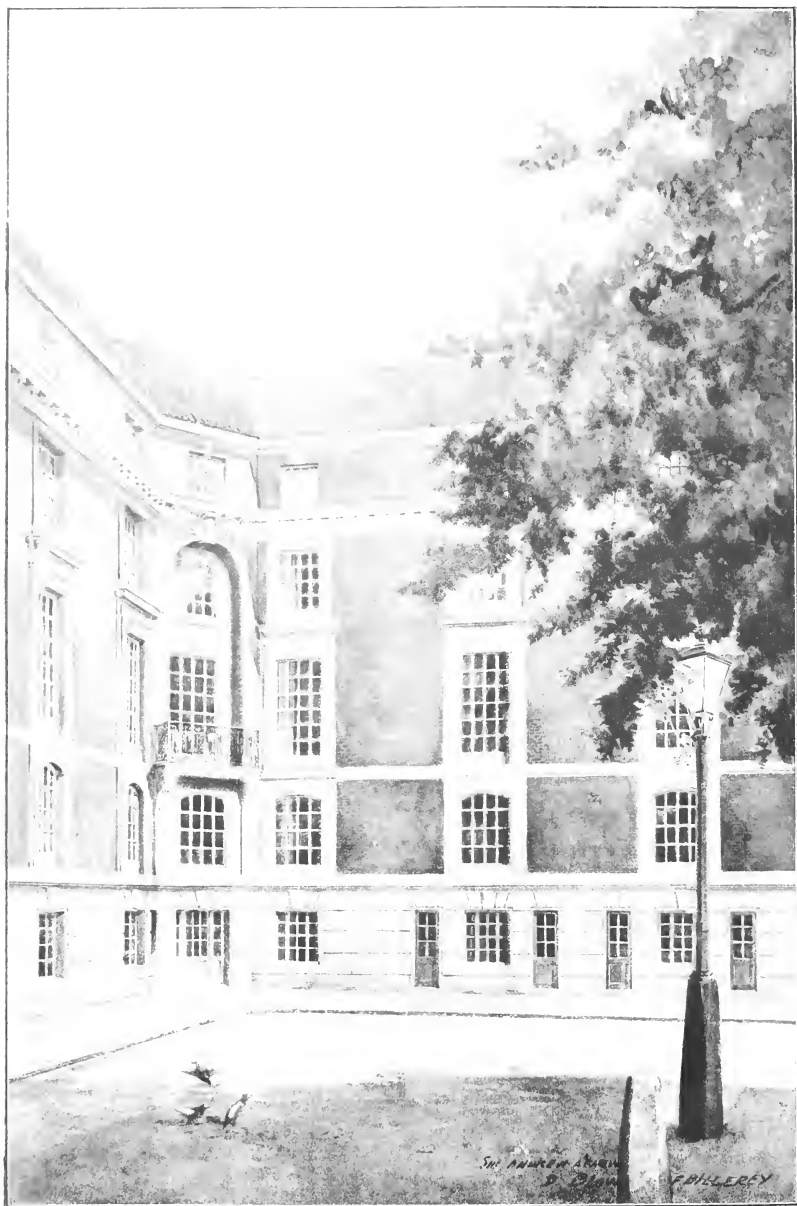
Thorne, F. and T., Isle of Dogs ...	42,267	0	0
Rowley Bros., Boundary Works, Wood Green ...	42,141	0	0
(Architect's estimate, £42,534)			

(Continued on page XVII.)

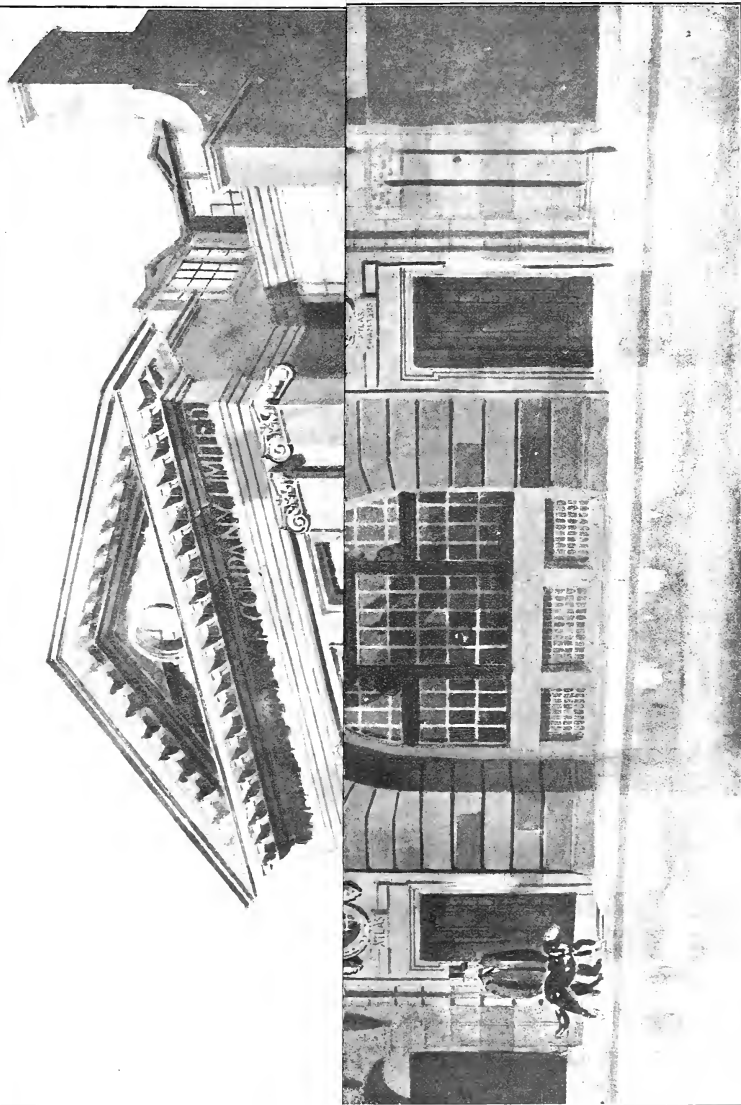
1800	James M. Marshall, Clerk, Union O'Brien, High-street, Doncaster	June 14
1810	W. E. Griffith, Bathurst, Port Dundree	14
1820	For W. Watkins, Clerk, Election Offices, Colchester, Llanelli	19
1830	A. Smith, Town Clerk, Municipal Buildings, Rye	20
1840	The Com. Intel. Branch, Board of Trade, 73, Basinghall-st., E.C. 4	July 29
1850	The Secretary, Police Ward, Marlborough, Okeham, Okeham	Oct. 1
1860	J. D. Lawline, Clerk, Town Clerk's Office, Lyngton, Hants	Nov 10
1870	J. D. Lawline, Clerk, Town Clerk's Office, Lyngton, Hants	Nov 10
1880	The Secretary, 7, Bute-crescent, Cardiff	43
1890	J. L. Whateley, Town Clerk, City Hall, Cardiff	40

<p> Additions—To English Congregational School, 36 Tynwald—Three Houses and Sheds Tynwald—Offices Tynwald—New, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, </p>





HOUSE FOR SIR ANDREW N. AGNEW, BART, SMITH SQUARE, S.W.
Messrs. DETMAR BLOW and FERNAND BILLERBY, Architects.



ATLAS INSURANCE OFFICES, BIRMINGHAM - Mr. PAUL WATERHOUS, M.A., F.R.I.B.A., Architect.





ST. LUKE'S CHURCH, WEST HARTLEPOOL: SELECTED DESIGN.
Messrs. LOFTING and COOPER, Architects.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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Strand, W.C.

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CROSBY HALL EXHIBITION OF MURAL PAINTINGS AND DECORATIONS.

An exhibition of nearly two hundred examples of very varying interest and merit, including designs by Mr. John S. Sargent, R.A., Sir J. E. Millais, R.A., Albert Moore, Mr. Walter Crane, Mr. Henry Holiday, and Ford Madox Brown, was opened to the public last Monday at More's Garden, Chelsea, in Crosby Hall. That very few of the proposals exhibited rise to any degree of distinction tends to demonstrate the fact as to comparatively little advance having been made of late years, in a general way, towards a higher appreciation of decorative colour and the application of ornament to interiors of a monumental order. The competitions held at the Royal Academy for the Decorations of Public Buildings have likewise, for several seasons now, evinced the same shortcomings, while the prevailing inaptitude of design characteristic of wall-paper hangings contrasts strikingly with the beauty and good drawing so satisfactorily prevalent, under the influence of William Morris and his school, less than a generation ago. Any attempt, therefore, such as this Chelsea show, to encourage and improve the application of design to mural work, ought to be helped forward.

Following the printed list of the exhibits, we note some of merit. In the absence of general representations of the Temptation wall-paintings by Miss Emily Ford in St. Peter's Church, Westminster, and Salford Parish Church, we can only judge of the Fragment from "Emmans" in the former, and by the heads in fresco from the latter. Their profiles, so admirably delineated and strong in colour, seem to stand out too prominently as silhouettes against a light background—a common fault, which gives a disturbing result.

"The Nativity" is the subject of a competition for decorating a wall-space in St. Jude's-on-the-Hill, and at the base occurs two semicircular arches, which difficult proposals have recognised in singularly different ways, the tympanum above as the field for enrichment, being arranged variously. Mr. Woodroffe Rhoads, on the whole, is perhaps the best, though his scheme in blues, greys, and purples is somewhat uncommon, and possibly odd in effect. Encircling the Virgin and Child are depicted the Magi and others in adoration, while the archangel above the manger-throne guards the holy family. The cartoon of the Virgin to full size is a demonstration of the artist's ability in draughtsmanship. Hanging some distance away from this work, No. 18, we reach the

last serious, though very different, competitor's idea for the same church, No. 35, by Mr. H. R. Milham. In this scheme the artist has built up the manger timberings with broad framings, which space out his design in a conventional way, some what appropriate in recognition of its content, the uprights rising from the haunches of the twin arches at the base. The Virgin and Child occupy the central compartment, and angels occur on each hand, surmounting the composition on pyramids, though in a sense, perhaps, some might say they were climbing about the carpentry of the erection. Right and left below, the oxen and the ass are represented as in the stalls. The proposal is busy, no doubt; but it is flat in treatment, as it should be; and the author sends a detail of the central subject.

From the Gallery of Modern Art, Dublin Messrs. Alfred Cooper, H. B. Wright, and Conn Rao send three designs of some power, and strong colouring in illustration of "The Meeting of Cuchulainn and Emer," marked "Celt. 1, 2, and 3." We prefer the first so marked panel, though the struggling figures display strenuous action, and the tints are vivid; but the composition is powerful and self-contained, as a panel demands. "Three Shouts of the Sons of Tuireann," an Irish legend, illustrated here by Mr. John M. B. Benson, is a piece of good drawing, particularly the heads of the figures in detail.

"Our Lady of Sorrows" is, perhaps, the most notable exhibit in the hall, though it is hung somewhat high by the corner, in not a good light. The artist, Mr. John S. Sargent, R.A., has combined applied metal in the range of canelsticks at the feet of the Virgin and the group of swords piercing her heart as she stands on the crescent moon. Such a work needs to be set as a centrepiece to be seen to advantage, and its merits, though eclectic in execution, are of a high order, dignified and devotional. The series of lunettes, with blue-black grounds and stone-coloured figures, by Sir J. E. Millais, R.A., lent by the F. & S. Art Gallery, do not show this great master to advantage, and as decorative works they do not appeal to us. The mural decoration for Boston Library, "Israel and the Law," by Mr. John S. Sargent, R.A., is much more worthy of remark, and, of course, is incomparably more important. Hebrew letters frame the composition, which was lent by the painter. The same artist's decorative conception of the seated Virgin, enthroned below angels bearing her golden crown as Queen of Heaven, is a notable example

of his skill, and entitled "Annula Domini," "Annus," and a mural panel by Albert Moore are lent by the Victoria and Albert Museum. The Society of Antiquaries have contributed a very fine copy, by Richard Smirke, of wall-paintings formerly existing in St. Stephen's Chapel, Westminster, and rendered in gold and colour, which, if a truth hard in this careful representation, by reason of its newness, is an exceedingly capable illustration of an historical piece of work of great interest. The charred cartoon of "Queen Eleanor" by Ford Madox Brown is lent by Mrs. Ernestine Mills, and will attract some attention as the work of this master.

Messrs. Croxson and Blackwell's Jam and Pickle Factory designs in competition fall short of the ideal; but Miss B. Scholz is to be congratulated on the drawing of her little boy from the design "Poking G. seberries," though the child would look well at any scale. Mr. W. Tristram lends six copies, hanging in the bay of the hall, of Early English wall-paintings. The study of part of a fresco in the Chapel of the Assumption at Baywater, by Florio Shields, and lent by his executor, is a very fine piece of decorative drawing illustrating "The Descent of Manna." The enclosing figure, emptying the manna before Moses, is exceptionally strong, and so is the design of the Prophet himself seated at the end of the panel. Mr. Henry Holiday contributes several characteristic examples of his facility of design, and we notice Mr. R. Anning Bell's mosaic panel outside H. Mannan's Museum at Forest Hill, in quiet colours, with figures of "Humanity," "Love," "Faith," "Constancy," "Charity," and the rest grouped spiritually and elegantly in a range of frieze design. Mr. L. McD. Gill shows a scheme for decorating the Lower Hall, Ladies' College, Cheltenham, with blue and green arched-roof principals adroitly shown in perspective, with foliations on the walls and between the windows capably suggested. Mrs. M. M. Jenkin shows a design to commemorate the work of Florence Nightingale in a pleasing way with a nurse standing in a pleasing way green at the end of a hospital ward, modestly managed in graceful lines; but we doubt if the perspective of the range of beds can be justified in mural decoration, suggesting rather a hole in the wall. Plenty of Medieval precedents can, no doubt, be quoted in justification; but still the objection stands. We have said enough to warrant the remark as to the exhibition being well worth seeing, and so is Crosby Hall, with its noble old roof.

MODERN ENGLISH LANDSCAPE.

extension of our topographical landscape in the Great Exhibition, organised by the Imperial and Society of Sculptors, Painters and Engravers, is an interesting collection of 245 works, principally by English artists, and is, in its range of subjects, wider, deeper, perhaps, than its predecessor, and yet, on the other hand, it is narrower in its range of subjects. Contemporary art at the Royal Academy, for instance, is not, it is true, particularly of its pre-eminence, but still it is not so manifestly to be represented by the late G. F. Watts, Lord Leighton, and the few others whose works appear.

Still, it is a good show, and not without its less, in that it is capable of appreciating the change in British landscape art during the past thirty years. We think, of course, that the reaction against the imitative tendencies of the superseded school has gone too far, and that some of the men of to-day paint, as it were, comments on Nature—sometimes petty and subtle, sometimes more prose, and too seldom design to charm the average man of culture with a reproduction of the beauty they fuss about. That, however, is by the way. We have very little Post-Impressionism to give one indignation, and there is much to attract.

Most of all, perhaps, the works of Mr. Walter Graves, all characteristically Whistrian, "Chelsea Wharf: Winter" (3), we think the most, though perhaps "Chelsea: Snow" (4) is the more skillful. Mr. P. Wilson Steer is hardly at his best in any of his five exhibits, of which "Hawes, Yorkshire" (7), places most. Mr. James Chalkley is well represented. His "Sussex Landscape" (19) and "The Old Mill House" (20) are good. The late C. E. Holloway is given eleven exhibits, "The Purfleet" (28), "The Breezy Day" (29), and "The Breakwater" (30) being the most attractive. Cecil Lawson's rather large "Hop Gardens of England" (39) is able, but the houses and the road to the left really interest more than the namesubject. The late Buxton Knight's exhibits are numerous—there are a dozen of them; but each is well worth its space. Vigorous and homely, if sometimes rough, his work grips one at once, as in "Cherley Wood" (40), "Chesil Beach" (45), and "Portsmouth Harbour" (18).

Of the eight subjects by the late G. F. Watts, one would not miss one, though most seem to lack the more homely characteristics of his English work. Still, for beauty of colour there are few things in the room to match "Near Florence" (54) or "Boudrim, Asia Minor" (56), while the three Scottish scenes—"Loch Ruthven" (57), "Scottish Heather" (59), and "Afterglow" (60)—are rich in romance.

"Low Tide" (71), by Mr. Alexander Ritchie is happily conceived and executed. Mr. E. A. Walters' "The Farm" (82) we have mentioned before, and with justly due praise. Mr. William Robertson's "Deserted Quarry" (90) is the better of his two exhibits. "The Landscape with Men in a Boat" (93), by Alphaeus Legros, is a work of power indeed, and, in its way, one of the most attractive in the exhibition.

Among other creditable works there should be noted by Mr. C. J. Holmes, especially his "Canoe Creek" (127), "The Bude Breakwater" (130), "The Storm" (107) by the late Arthur Melville; "A Hundred Miles from Hyde Park Corner" (110) and "In Arctia" (113), by Mr. A. S. Harnick; Mr. John Lavery's five works (111a, 112, 113, and 114), all good; the first "Tangier Harbour," especially; Mr. Philip Connard's "The River Mar" (119); Mr. Francis H. Newberry's "The

Shepherd's Star" (100); Mr. James Pater's "The Stronghold" (126); Mr. Algernon Talmage's "The Cliff" (133), and Mr. Mark Fisher's "Meadows on the Sea" (125).

The eight fine Brazas in the end gallery are its chief attraction; no one must miss them (119, 150, 151, 153, 151, 153, 150, and 151). Mr. Muirhead Bone's "Lower Town, Perugia" (158) and "San Ercolano" (188) are very good. There is a "Landscape" (219) by Whistler, and seven fine drawings and etchings by Alphaeus Legros, "La Charbon" (225) the best. Mr. Samuel Tovey has a good water-colour, "Misty Morning, from the Tower Bridge" (193).

BRICK ORNAMENT.—VII.

(Continued.)

PILLARS AND COLUMNS.

Fig. 13 indicates the method of bonding shown in Fig. 11 more clearly. Fig. 14 shows a slightly more elaborated base, the capping following in similar manner. Fifteen

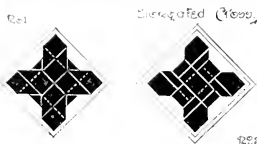


FIG. 13.

illustrates the adaptation of the bullnose brick to such columns, which gives a bold and pleasing effect; it could also doubtless be worked in conjunction with the 9in. half-round coping brick. The slight relief afforded the capping piece is obtained by similar bricks and a pointed coping having slightly incised panels to introduce a little relief. It should be borne in mind that some of the examples can be considerably improved by the introduction of lining, pattern relief, or raised and sunk work, although these have not been shown previously. Figure 16 illus-

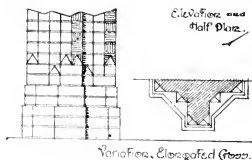


FIG. 14.

trates various methods of adapting the cavetto or other moulded bricks by some similar treatment. The second example on this figure indicates a cut cavetto brick introduced under the pointed coping as an ornamental relief course to the cap. Quite a different effect might be again obtained in this position by use of the oculo in a similar manner. Fig. 17 is an example of the solid square column, presenting a vertically lined and moulded face to each side; a type necessarily somewhat expensive if built in a good bond, as it should be when loaded to any extent. For some fairly light positions they might be constructed with a simple reversal of the bond, or an occasional tie-brick or two, involving merely a little cutting in a course here and there. To obtain a thoroughly effective break of the centre joints the methods shown have to be adopted. There are one or two other slight variations for obtaining the same results, but the cutting works out at much the same. The more customary method, shown in Fig. 17a, is really a trifle more expensive, owing to extra wastage. It should be noted the centre is formed in 17 by a whole brick and two Queen closers,

If the column is rusticated with alternate moulded brick, matters are at once simplified, dispensing with a great deal of cutting. This forms a very effective column, and it should be grasped readily enough without special plan and elevation. A combination column

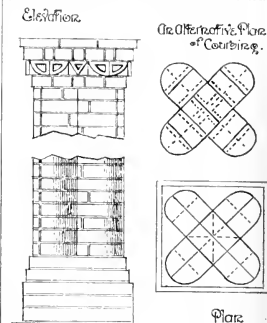


FIG. 15.

is illustrated in Fig. 18, showing method of extension, with a fair system of bonding. To obtain a thorough breaking of the bond throughout, where it might prove essential, the moulded bricks would require cutting as in the previous example. Coming to larger pillars still, in use for heavier and bolder types of work, it will be found that far less cutting is involved generally, even where a great many moulded bricks are used. This is illustrated by Fig. 19. As seen, with a larger column it is possible to work in more whole bricks, especially by adapting the splay to the flat angles. Either system of bonding, reversed alternately, would give good results; or that shown by the dotted lines on No. 1 might be occasionally used. The different moulded bricks are merely introduced to

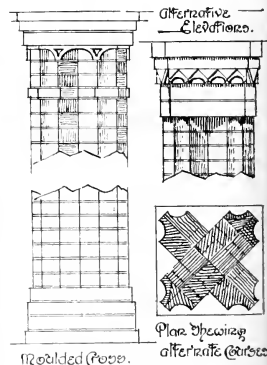
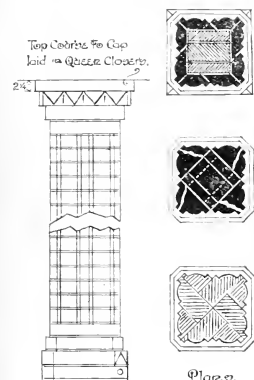


FIG. 16.

convey an idea of the effect of each. Although such variations might be somewhat original, they would not look so well in actual execution as uniformity of the moulded bricks; with this class of pillar, the former example, Fig. 18, being longer and more slender, is a different matter. Again, it would involve a different method of bonding. Fig. 20 illustrates another design with moulded bricks, producing a panel-like angle

or face, according to the setting. As will be seen, the major portion can be constructed without any cutting, a breaking tie being occasionally introduced, as shown by the



Elevation of
Square Moulded Pillar.

Fig. 17.

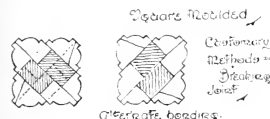


Fig. 17A.

dotted lines in No. 2. Fig. 21 is a rough sketch showing the use of the ordinary half-round coping-brick, which lends itself readily to column construction for many purposes. A slight entasis can be given by a trifling variation in jointing, those at top and bottom being fine set. Angle panelling with pillar

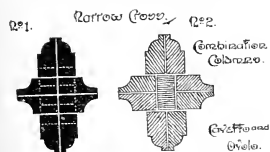


Fig. 18.

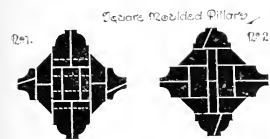


Fig. 19.

work is very effective for many purposes. Fig. 22 illustrates this method. No. 1 might be used for many forms of garden work—pedestals, etc.—with alternate bonding, as shown by the dotted lines and crossed portions. For interior work, or otherwise, where some considerable stress has to be con-

sidered, a thorough breaking of the joints to insure effective bonding is imperative. No. 2 on this figure is, perhaps, the most work-

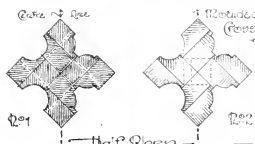


Fig. 20.

manlike whole, but involves cutting practically the whole of the bricks to attain this end, only two whole bricks and the centre Queen closer being obtained in each course. No. 3, at first glance, appears to be a much

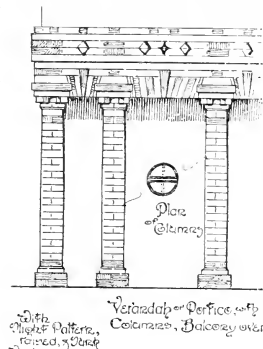


Fig. 21.

more complicated and expensive piece of work; such is not the case on further consideration. In one course, the whole of the outside bricks are cut indicated by the crosses, the centre being formed by a whole

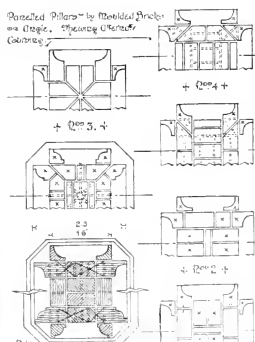


Fig. 22.

brick and two Queen closers. On the next course, a great deal of cutting is saved by the introduction of splay-bricks, merely four angles requiring cutting by this method. A desirable feature, too, gained with this

method, is the equal, or better, result on face; this becomes especially noticeable when used in conjunction with raised and sunk, pattern, or lining work. No. 4 illustrates what is really the best method in the point of view regarding expense. By using three whole bricks in the centre, Queen closers on face, combined with whole piers, as shown, it is merely necessary to cut the angles, when a thorough break in the bonding is obtained throughout. Each of these methods have their own particular advantages for special positions or requirements. Whilst No. 4, for instance, presents a somewhat coarser appearance in the face jointing, it could be used in conjunction with No. 3, introducing the latter at points necessary for any pattern work, etc., where the more broken-up appearance given by the jointing would prove valuable.

WALTER G. KERBY (ARCHT.).

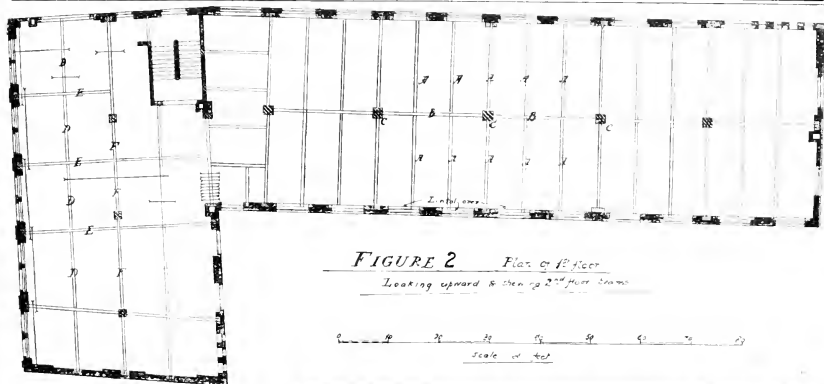
COLOUR PHOTOGRAPHS.

A very good idea is afforded as to what is being done in the way of colours applied to photography by the charming exhibition of transparencies and prints now on view at 21, Wellington street. Mr. A. B. Warburg shows a pair of Arabic bichromate prints next to three examples from life by Mr. Walker Munro in Pinatype three-colour negatives, the third being quite the best picture, but possibly this may be due to the subject. The colour collotypes shown by the London Stereoscopic Company and others by the Medici Society are so beautiful, and particularly the "Madonna and Child," after Botticelli (14); "The Concert," after Terborch (13); and "Lady Hamilton," after Romney (15), all of which are extremely fine, that they somewhat spoil by contrast the crude and artificial paper prints from trichour negatives, or by the bleach-out colour process, also on view. Mr. F. T. Holler shows a three-colour collotype of "Venice," after Turner which certainly justifies his reputation for good execution, and we thought Mr. Samuel Manners very successful with enlargements from quarter-plates of roses and fruit, developed on three-colour glass carbons. The coloured plate of "Apples" (37), by Mr. John Riley, of Dundee, displays no little merit, and with another fruit study by him is a Sinop collotype three-colour print. Autochrome, monochrome, and four negatives from yellow, green, red, and blue filters are displayed together in one frame by Mr. Charles Harkins (43), as well as the Paget Screen plate in its several processes of development (44). Mr. Burdard sends several pictures produced by bichromate-size, giving somewhat the effect of water-colours on rough paper, and, when seen from a distance, are effective. A large number of transparencies form part of the exhibition in a darkened room, including some architectural views from Italy and Sicily. The micro-spectra camera shown by Messrs. J. and E. Rheberg, of London, is a complicated but ingenious instrument in which a prism is adjusted, throwing prismatic colours on a photographic transparency fixed in the centre. The plate on view represented a series of butterflies, yellow on the right hand and blue and purple on the extreme left, the print having a corrugated screen attached to it. This exhibition closes to-morrow (Saturday).

Finchley's municipal housing scheme has proved so successful that there is a balance of nearly £600. There are sixty houses at rentals of from 10s. 6d. to 5s. 9d.

The Ulster Hospital for Women and Children in Templemore-avenue, Belfast, has just been opened. The architect is Messrs. W. H. Tullach, and Fitzsimmons, of Victoria-street, Belfast, and the builders were Messrs. T. R. Murphy Brothers, of Ravenhill-road, Belfast.

Mr. E. D. Groves, the survivor, was presented, at the last meeting of the urban district council of St. Austell, Cornwall, with an oak dining-room table (clock inscribed): "Presented to Mr. E. D. Groves by the members and officers of the St. Austell Urban District Council on the occasion of his marriage, April 26, 1912."



ing, with a consequent saving in both time and cost.

Another important feature in the design is the regular distribution of the loads on the outer supports, in order to secure an even loading of walls, foundation, and subsoil of site—a result which must be achieved in conjunction with the collection and centralisation of the interior weight as far as is practicable, in order to secure the minimum of interference with the lighting and use of the premises by columns and supports intersecting the floors. The objects have been effected in a marked degree in the present case, only eight columns being employed in a total floor area of over 7,000 superficial feet. This has been arranged in the longer wing by collecting a series of loads on beams "A" (See Fig. 2) and transmitting them by means of beams "B" to column "C," each of which forms the central point in an area of 1,700 superficial feet.

With regard to the loads on the outer walls it is frequently desirable to adopt the course followed to some extent in the present instance by introducing reinforced columns in the external walls rather than employing the piers, when the provision of sufficient area to provide the requisite strength often renders the work quite as costly as the provision of separate reinforced columns, and involves the surrender of that very vital element in town factory properties—viz., window-space.

The construction employed in the bay, of which column "C" forms the central feature, is shown in detail (Figs. 3, 4, 8, and 8A). The floor is 4in. in thickness, with the usual reinforcement of thin rods. The bays are 7ft. wide between the beams AA. These beams, which have an average span of 18ft. 6in. are 16in. deep, including the floor, and 5in. wide. A dual rod reinforcement (Figs. 3 and 8A) is employed in the centre of the span, one of the rods turning upwards at the points of contra-flexure to resist the tensile bending stress above the point of support in beam No. 2, and to assist the vertical linked hangers and bonders in resisting the shearing forces.

Of the same type is the supporting beam B (Figs. 4 and 8), which is constructed in an overall depth of 20in. It is 6in. wide, and supports the loads from four beams (A), concentrated at two points in an effective span averaging 22ft., an increase being made in the shear members of these beams, on account of the concentrated loading.

The columns "C" supporting these beams are shown in details (Fig. 12). The section increases from 8in. square, supporting the roof to 11in. under the third floor, 15in. at the first floor, 18in. at the ground, and 22in. square at the basement. Four rods linked at 12in. intervals are used throughout, and the connection between the rods at the points of decreasing sectional area is effected by



FIG. 14.

means of 9in. ferrules, which appear to make a much neater, more staple, and facile connection than the ordinary wired joint. The manner in which the loads are introduced from the intersecting beams at each floor by

the use of reinforced concrete brackets reduces the risk of defects due to cracking and jointing and generally increase the stability. The type of foundation used for these columns is shown in Fig. 13; 64 square

18 ft. 6 in. span, 2 ft. 6 in. total depth of the shell. A cross-section composed of twenty parallel rods is indicated about 1 ft. 6 in. from the top, for which a preliminary design of 8 ft. Portland cement concrete is provided. A longitudinal section taken in the S.E. wing is shown in Figs. 5 and 7. The construction of beam No. 5, Fig. 5, follows that adopted for A. The spin in this case is 13 ft. 6 in., and the beam 1 ft. 6 in. below the bottom of the water tank. The supporting wall, Fig. 6, carries the weight from beam as a centrally-constructed load.

18 ft. 6 in. span between beams, and the extra wall, and the spin of 2 ft. 6 in. between the centre of the columns is 13 ft. 6 in. These beams are constructed with a depth of 18 in. and 2 ft. 6 in. respectively, and a width of 18 in. The depth of "F" which is shown in Fig. 7, being varied from 18 in. to 2 ft. 6 in. to accommodate to the varying loads produced by the differing positions of the beams "E" and "F" interest them.

The columns are similar to those employed in the longer wing, and resemble columns in Fig. 12 in design.

The construction of this building is not only light and unobtrusive, when it is considered that it has been designed to support a superimposed load of 200 lb. per square foot.

A review of the possible and practical alternatives previously advocated in these pages has been made by loading three of the floors on the second floor up to 300 per cent. of the maximum calculated load. The results were unmeasurable in most cases, and the maximum of 1,500 lb. of the span, showed that unquestionable soundness and rigidity which, skilfully designed and carefully executed reinforced concrete is an easy possession.

(The construction.)

THE NEWER RESPONSIBILITIES OF ARCHITECTS AND THE CASE OF "MINTER V. WALDSLEIGH."

A paper upon this subject was read by Mr. William Woodward, F.R.I.B.A., F.S.L., of the extra meeting of the Royal Institute of British Architects, held in the west gallery at 4, Colindale Street, W., on Monday evening, 25th June. Mr. Leonard Stokes, occupied the chair.

Two lectures, in the earlier part of his paper, summarised the action "Minter v. Waldsleigh," heard by Mr. M. Muir Mackenzie, the Official Referee, in some 57 days in July and August of last year. Judgment being given on October 20, 1911, the case was fully reported in our issues of July 21 and 28, August 1, 11, 18, and 25, and October 27, pp. 736, 163, 204, 239, 278, and 399 last volume. The plaintiff, he reminded the audience, was the well-known founder of Putney, Mr. F. G. Minter; the defendant, Professor Waldsleigh, of the University of Cambridge, his architect being Mr. W. Foster. The clerk of works was Mr. W. Green. The architects who gave evidence for the plaintiff were Mr. Wm. Woodward and Mr. F. W. Foster; and Mr. B. A. Chubb, the quantity surveyor.

As the defendant for the plaintiff, the speaker, who was asked for the details of the case, Mr. John Murray, Sir Arthur Stirling, and Mr. E. F. Lang, all architects, which was in the "Institute Papers" was to make alterations and additions to a country mansion in Cambridgeshire, known as New Hall. The total cost of the alterations and additions amounted to £22,000. The contract, amounting to £22,000, was given to Mr. Woodward and Mr. Foster by Mr. Minter. Mr. Mackenzie finds in his judgment that the authority of the defendant to give the order is dated 20th October 1911, and is not competent to alter the contract, and that the alterations and additions were made by the defendant for the purpose of the alterations and additions to the contract.

The alterations and additions to the contract, amounting to £22,000, were given to Mr. Woodward and Mr. Foster by Mr. Minter. Mr. Mackenzie finds in his judgment that the authority of the defendant to give the order is dated 20th October 1911, and is not competent to alter the contract, and that the alterations and additions were made by the defendant for the purpose of the alterations and additions to the contract.

date. Mr. Mackenzie raises the question whether an architect can be effectively discharged from his office by the employer alone, and he quotes cases bearing on that point. He decides that the architect, in the case agreed upon between the parties, cannot be discharged by the employer alone. The defendant placed reliance on Clause 3 of the Articles of Agreement, which provides for the nomination by the employer, subject to objection by the contractor, of a fresh architect in the event of the death of the one named in the contract, or his ceasing to be the architect for the purpose of the contract; but Mr. Mackenzie decided that that clause did not operate. There is an important matter, however, involved in this decision of Mr. Mackenzie's, and that is that an architect's certificate might not be justifiably held to include for work outside the work contemplated in the contract, and he decides that in regard to all extra work ordered, either under the contract or in circumstances which created in the defendant a liability to pay for it, the provisions of the contract, as to payment, were to be observed, i.e., that on the one side the defendant was not until the completion of the whole works liable to pay except on the terms of the contract, and then only for the amount certified, and that, on the other side, the certificates were to include the price of all the work ordered as above mentioned. He therefore decided that the contention failed, which means that in this particular case the architect was justified in issuing certificates for work which, although not specifically included in the contract, was executed with the cognisance of the employer, and were therefore subject to all the conditions of the contract. Clause 13 of the contract specifically names a surveyor who is to measure and value all authorised extras and omissions, and provides for a copy of the bills to be given to the contractor. Mr. Mackenzie decides on this point that the particular surveyor named in the contract has measured and valued additions for which the defendant was liable under the contract, or an omission properly authorised, then such measurement and valuation were decisive. There did not appear to be, to the lecturer's mind, much ground for doubt on this point, but it was, unfortunately, the case that builders employ a surveyor to measure and value for them the variations on the contract, it is well to bear in mind that the ultimate decision on these matters rests with the surveyor named in the contract. The authority to be exercised by a clerk of works on a building is a matter of importance to architects and builders. The case of "Minter v. Waldsleigh" shows that we cannot be too careful in matters relating to the contract, and that lawyers and judges put upon subjects, which we thought quite clear and simple, interpretations which may, and do, involve all parties in much trouble, anxiety, and cost. The clerk of works in this particular case gave many orders and directions, which, by the way, he had no authority, which were obeyed, as usual, by the foreman of works. Mr. Mackenzie decides that the clerk of works had no power or authority, of himself, to authorise or permit the contractor to disregard Clause 7 of the conditions of contract. The most important part of this case was the alleged defects in materials and workmanship; and, no doubt, there were such defects in the building. Mr. Mackenzie had to decide whether the architect and the clerk of works were, or the plaintiff was, responsible for such defects, and in what manner they were to be made good. The defendant complained among other things, of the timber in the floors and roof. That it was not in accordance with the contract, but was inferior or deficient, to the detriment of the stability of the building. That the floors and partitions were constructed in violation of the contract, and were defective in stability. The jury was bad. That the roof was bad, and made of bad materials and workmanship, and that it was not in accordance with the contract, and was inferior or deficient, to the detriment of the stability of the building. The evidence brought before Mr. Mackenzie on these

alleged defects was of the most contradictory character. Apart from the other evidence given, that of the architects giving evidence in direct issue. In the completion of the building, the defects were not pointed out by the architect, Mr. Foster, and forwarded to the plaintiff, who not only at once agreed to send down and make good such defects, but offered to go over the building again with the architect and add to the list any other defect which might be apparent. The plaintiff, however, was not allowed to proceed with the list of defects, and the result was the result of "Minter v. Waldsleigh" was the result. As regards the description for the timber, the specification was in the somewhat antiquated form which we all know. The author deposed that he was not able to say where the timber came from, but that he had satisfied himself by examination that it was of the best quality, and as free as possible from defects. The evidence of the defendant's experts was to the effect that it was of very inferior quality, and not obtained from the places specified. On March 30, 1910, the architect wrote to the plaintiff calling his attention to the timber, stating that it was of inferior quality, and asking for its removal, but also stating that the long as the timber supplied was of good, sound quality he would be satisfied, and, subsequent to this no objection was made to any timber put in by the plaintiff. Complaints were also made by the defendant as to the dimensions of the timber, and also as to the construction of certain floors on the first story. The scantlings of joists had been altered, and the spacing out of the joists was not specified. The construction of the roofs was entirely condemned by the defendant's witnesses. Spacing out of timbers, alterations in heightening certain portions of the roofs—under the distinct directions of the architect—and various other alleged defects were the subject of complaint on the part of the defendant. The lecturer stood in his evidence that the construction of the roofs was sound and sufficient. It is important now to consider upon whose shoulders the responsibility for these serious allegations should rest, and Mr. Mackenzie decides that, so far, the clerk of works had no power or authority, of himself, to authorise or permit the contractor to disregard Clause 7 of the conditions of contract. Mr. Mackenzie quotes the case of "The London School Board v. Wall," in which the builder sought to excuse deviations from the contract, in the matter of materials and workmanship, on the ground that they had the approval of the clerk of works, and another official appointed on behalf of the building owner to look after the work. The judge, who directed the jury that the clerk of works and official had no power to sanction such deviations, and that their sanction did not protect the builders. Then, as to the responsibility of the architect for the quality of the timber, and general construction of the roofs and floors: Did he by way of authorising the plaintiff wholly or partly? In Mr. Mackenzie's opinion the authorities show that the power of the architect to order or sanction variations does not empower him to authorise departures from the terms of the contract which involved the substitution, in the whole or part of the work, of "inferior" materials and workmanship for those prescribed and allowed for in the contract, precisely as to prejudice the strength and stability of the building. As to other matters of complaint, Mr. Mackenzie considers that they were mainly due to the variations introduced by the architect, and the manner in which he required them to be carried out. Other alleged defects have not, he says, been established to his satisfaction. Mr. Mackenzie next deals with the defendant's attacks on the joistery as being bad in material and workmanship. Mr. Mackenzie states his opinion that as regards the "quality" of the wood, the onus of proving that it was inferior and unseasoned was on the defendant, and that he has not discharged it. Mr. Mackenzie states that much that is properly covered by Clause 7 of the sinking of the floors and other parts, but that the amount of joistery which was

defective in construction, when supplied, is not large. Mr. Mackenzie, as regards the drainage, treats the fact that the defendant himself employed Mr. Ussil (engineer to the Sanitary Protection Association) to design and superintend the carrying out by the plaintiff of the system of drainage and water supply designed by Mr. Ussil, as justifying the payment by the defendant of the plaintiff's account, less a sum amounting to £7 4s. 3d., to make good some defects. Mr. Mackenzie then deals with the numerous items of separate complaint, not included in those referred to. On the whole, the plaintiff succeeded in establishing his case as regards all these very numerous items—some of which were very trivial, one being allowed at the price of 2s. Mr. Mackenzie finds that the weakness of the floors has produced fissures, and cracks, and sinkings, and partings of joinery. Mr. Mackenzie sums up the important question of what would really be necessary to put the interior of the house into a safe and proper condition in accordance with the contract, as follows:—"The works of remedy recommended and suggested by Mr. Woodward and Mr. Chidgey, Mr. Foster, and by Mr. Murray and Mr. Ball are, I daresay, all practicable; but those of Mr. Woodward, Mr. Chidgey, and probably Mr. Foster would be insufficient to remedy the defects for which the plaintiff is responsible; and those of Mr. Murray and Mr. Ball would remedy or prevent defects more than the plaintiff is responsible for." The defendant claimed in his damages the cost, or some of the cost, of removing, storing, and bringing back his furniture during the works of repair of defects; and, further, the cost of employing professional assistance in the work of reconstruction or repair; but, on the work of reconstruction or repair, Mr. Mackenzie disallowed these claims. Another matter of some importance raised in this case was with reference to what were and what were not authorised "extras." The defendant's contention was, in effect, that no extra works could be charged for unless authorised by writing or drawings signed by the architect, or by a written approval after the fact, by the plaintiff contended, in opposition to this, that he was entitled to be paid for all additional or extra work or materials which had in fact been ordered or sanctioned by the architect, or by the clerk of works, or by the architect's deputy or assistant, or by the defendant or his wife, or had been rendered necessary in consequence of variations or alterations ordered or sanctioned by Mr. Mackenzie, in favour of the defendant on this question. In some general observations on the case, Mr. Woodward remarked:—"I cannot help expressing my regret that the plaintiff was not allowed to do what he was perfectly willing to do, and, in fact, was bound to do under Clause 17 of the contract, and that was to make good the defects which had appeared in the house before Mr. Foster was superseded by another architect. Whether or not what he might have done in the way of making good defects would have satisfied Mr. Foster or the defendant is another matter; but at least the plaintiff should have been afforded the opportunity to try. As regards the responsibility for making good defects arising from faulty construction or construction designed or acquiesced in by the architect—it does seem to me most unfair that the result of this should be placed on the shoulders of the builder. Mr. Mackenzie decided not to lay down any clear and decided opinion as to this, but he rather inclined to the merits, and, I have hitherto thought that, as regards defective materials and workman, the builder is responsible, but that as regards the mere carrying out of the designs and directions of the architect, the architect or client was responsible for bad results. H.M. Office of Works deals with this particular matter in a manner to my mind quite fair. There can be little doubt that the many actions which have been fought during the last few years have brought to the front responsibilities and troubles never before realised by architects and builders. Our present conditions of contract do not provide in any way clearly for the settlement of these troubles, and it

becomes, day by day, more urgent that these conditions of contract shall be revised for the protection alike of client, architect, and builder.

Mr. H. D. Searles Wood, in proposing a vote of thanks to Mr. Woodward for his excellent and impartial summary of Mr. Muir Mackenzie's judgment, mentioned that the Practice Committee had under consideration the issue of a short guide to young architects as to their duties and responsibilities to clients and contractors.

Mr. H. T. Hare seconded the motion.

Mr. Maurice B. Adams remarked that a practice was growing up in the profession in regard to which, it seemed to him, some action would have to be taken ere long. He referred more particularly to the system now prevailing, both among engineers and architects, to call in specialists to design ferro-concrete work; these specialists usually found contractors to carry out their work. The specialist undertook to be responsible for any defect which arose from any fault of his in the way of design or inadequate materials, while the other contractors accepted all liability if it could be shown that there was any deficiency in the quality of their work or quantity of the materials they supplied, or any defect in the manner in which the work was carried out. With such divided responsibility, the difficulty in actual practice was to ascertain who was really responsible. The specialist and designer, when called upon by the building owner, said that if he should be called upon to design the work over again he should devise it in precisely the same way as was shown on the drawings and specifications, while the contractor contended that his interpretation of the specialist's requirements and the material he supplied were to share equally, but that if it could be shown that at any point he was wrong he would hold himself responsible. A case recently came within the speaker's knowledge where a structure was erected for a corporation, but it did not fulfil its purpose properly. The position he had described was taken up by the specialist and by the contractor. Fortunately, the parties were agreed to share equally in the expense involved in putting matters right. The employers bore one-third—say, £100—of the outlay required, the specialist a second £100, and the contractor the remaining £100, and thus by the expenditure of £300 or so, equally shared, the defects were remedied, and the costs of litigation, which would probably have not been incurred, were avoided. He suggested that architects should try to devise some plan whereby the responsibility for rectifying errors in such cases could be more clearly defined, so that these difficulties could be fairly and squarely met.

Mr. G. A. T. Middleton drew attention to the fact that the clauses of the specification relating to timber and steel and cement usually followed by many architects, especially those practising in the provinces, were antiquated and quite out of date—ports of origin were specified from whence no timber had been shipped for many years.

Mr. W. Henry White thought the Science and Practice Committee of the Institute should appoint a joint sub-committee to consider the form of specification and thoroughly revise it, and give reasonable standards of quality for materials used in various classes of work. In the case of "Minter v. Waldstein" there seemed to have been the usual arbitration clause in the conditions of contract, and why this was so weakly worded as to permit this costly litigation to be entered upon seemed a mystery. It should be imperatively laid down that any dispute should be settled by an arbitrator, and not allowed to go into a court of law.

The President: You know, Mr. White, it has been said that it is often cheaper to have a lawsuit than submit to arbitration.

Mr. White: That is so, often. I fear. I think that the form of specification made the less expensive of the two evils.

Mr. H. A. Satchell thought architects were unjustly blamed for want of practical knowledge as to the writing of specifications, especially in regard to timber. Until the present year there was no one textbook to

give the architect authoritative information as to how to specify in the timber sections. Architects were inundated with circulars which gave no practical suggestions, and which, therefore, promptly found their way to the waste-paper basket. It would be well if a committee of the Institute would issue a pamphlet stating what were reasonable qualities of timber to demand, and what defects must be condemned. Too often the same demands were made in a close-cut competitive job as obtained in a great edifice of national importance.

In reply to the President, Mr. Woodward said old and well-seasoned wood often shrank more under moisture than ordinary timber fresh from the docks.

Mr. Satchell added that his experience had shown that the drier timber was, the more absorbent it showed itself to be when exposed to heavy rainfall.

Mr. Saxon Snell remarked that imported timber would shrink, twist, and become affected with dry rot when exposed to moisture, whereas well-seasoned stuff would only shrink and did not twist.

Mr. J. Osborne Smith pointed out that much of the litigation in building cases arose from the fact that the builder very unwisely accepted and acted upon orders or variations from the clerk of works, and did not insist upon having a written order from the architect for every alteration from the conditions of contract. The power so given to the clerk of works arose from the fact that the architect was too busy a man to see that the work was properly carried out.

Mr. H. H. Langston thought the title of the paper, the "Newer" responsibilities of architects, was a misnomer. The responsibilities had always been the same—the fact was that the public now realised the weak points in the architect's education and position. Too often the architect did not seem to be aware of what was going on on the job, with the result that the building owner objected to pay.

At this stage of the proceedings a regrettable and happily unprecedented incident

disrupted the harmony of the meeting. A well-dressed young man, standing by the doorway had several times uttered incoherent remarks, and the secretary had walked down to the end of the room and quietly but sternly rebuked him. The visitor now interrupted Mr. Langston, exclaiming in a loud voice: "This all comes of the Labour Members—they're wrong." He was not suffered to further enlighten the members, for with the aid of the hall porter, Mr. MacAlister swiftly ejected him.

Mr. C. A. Geen said he agreed with Mr. Langston that the responsibilities incurred by architects as exemplified by the case so lucidly set forth by Mr. Woodward, were not "new" ones. They were as old as the Roman Law, and always had been the recognised liabilities of architects in this country. It frequently happened, however, in a case like "Minter v. Waldstein" that responsibilities were disclosed which were not before known, or at any rate were not previously recognised. In this instance Mr. Minter proved, that as the builder, he did extra to the value of £5,000, ordered by the architect or building owner. The architect gave a certificate covering the outlay, but the building owner argued that the certificate was issued after he had revoked the authority of the architect, and also that according to the conditions of the contract the work was to be first-class in character, whereas that executed was very poor work. Did the architect enlighten the owner and say that the certificates were to be given by "the architect for the time being," or "by the architect named in the contract and by no other"? That was a point which had not been disclosed in the reports of the action, and which could only be decided by reference to the contract itself. As regarded agency, did the architect direct the owner and authority—not only in the case cited but in ordinary practice—to order extras? It might be news to some architects to know that, prima facie, an architect had no power to order extras, although the owner could give him authority. If the law were otherwise, it is obvious that it would give the architect

by ordering extras to be added to the building owner's credit to any extent to run down in final bill. A building owner could give the architect a limited or unlimited power to order extras; but it is to the builder to inquire before proceeding with the work as to the extent of the authority. If the architect proposed to act as the agent of the owner where he had no such authority, the architect himself was morally liable under what was known as the "Warranty of Authority." This was so even if the architect was honestly mistaken, and really thought he was authorised to order extras when no such authority had been delegated to him. As to the question of revocation of authority, where liability had been incurred by the agent, the consent of the principal was necessary for revocation. When a building owner discharged the architect, it was his duty to at once inform the builder of the fact, for the architect would not have the right to give a certificate after his discharge. As to the builder's position, he might have entered into a contract in consequence of his faith in the architect which might involve the architect's successor, and therefore it was imperative that the builder should be informed of the architect's dismissal. If the builder did nothing when so informed, it would be held that he acquiesced in the fresh appointment, and hence it was prudent for the builder, if he knew nothing as to the ways of the newly appointed architect, to protest at once against his appointment.

The President, in summing up the discussion, said the paper was full of puzzling points. For himself he should like to forget, if possible, this very unfortunate case. So far as it was possible, it was much more advisable, when disputes arose, to persuade the building owner and builder to give and take, than to resort to arbitration and litigation. Mr. Scaries Wood and Mr. W. H. Woodward made a very practical suggestion, that a Committee of the Institute should prepare a pamphlet showing the powers and responsibilities of the architect; but there was a great danger to the young architect in endeavouring to act upon what he imagined to be his rights as an architect. It was a case where a little learning was actually a dangerous thing.

Mr. Woodward replied to the vote of thanks, which was passed by acclamation. He believed, notwithstanding what Mr. Green had just said, that the architect as agent had power to pledge his client's credit to practically any amount. All turned, when a dispute arose, as to whether the variation in the contract was for the benefit of the structure. The danger in the case of extra work was the ambiguous form in which it was done. If client and builder were informed in writing there would be little opportunity for mistakes. But it was the variation from the conditions that constituted the difficulty in every disputed builder's account. Orders were given by the clerk of works were obeyed every day by the builder, as they all knew; but the giving of such orders showed that the architect was too free and easy, too slapdash in his methods of working, and he took the opportunity of warning all young architects of the risks of such practices. Mr. Scaries Wood's suggestion for the revising of the medieval cut and dried specifications was well received and practical one. For himself, he did not know where timber came from, nor did he care; if that supplied agreed in quality with that he specified, he let it go. The remarks of Mr. Maurice Adams deserved the serious attention of specialist and sub-contractor for ferro-concrete, and in the end he had to be fully defined. He would not say that, in his experience, German and Belgian cement was very inferior to that of English manufacture, and they ought in this material to specify the place of origin, and so that such was supplied. As to the relative merits of arbitration versus litigation, his experience showed that price edging and arbitration were less costly, and his judgment was most apt to understand. A contract was apt to strictly construe the clauses in the specification, without referring into, or proceeding to a certain extent, to the requirements of the case.

PROFESSOR PRIOR ON THE VALUE OF A UNIVERSITY ARCHITECTURAL SCHOOL.

In his inaugural lecture as Slade Professor at Cambridge, Mr. Edward S. Prior, F.R.I.B.A., treated upon the organisation of the study of art by a university. Art had, he remarked, two sides—the recipient and the executive, and a university had the opportunity of training the public as well as the artist.

Archæology and art must be coupled together, and a right understanding of artistic value should be taken account of in art study. Professor Prior also pointed to what Cambridge has undertaken in its school of Architectural Studies. The student, before establishing his claim as a specialist for architecture, should show that he has interest in the practical forms of art, and has the instinct of handicraft. The power of the artist is a distinct physical idiosyncrasy—a predisposition necessary for training in art, and it is crucially to force it on the unfit. His sheer intellect, so to speak, gives proof that he has the capacity for understanding the achievement of a practising art. Architectural training is no good as a refuge for the mentally incompetent. When the student understands himself as an artist, the history of art, and historic archæology, become for him a new thing. The achievements of the past are studied, not as a story, but as an exercise, a means and a hand, some before him in their evolution, and he tests their achievement by his own experience. The programme of an archæological and architectural school must be closely condensed for University purposes, but the programme could be regulated by strictly keeping to the principles of practical art instruction and speediness to this end in the direction of the constructional art. The only just education of the artist, at the start and all through, is making him competent to meet present-day conditions with the present-day materials of art. He must be equipped from the beginning to take those conditions seriously and to experiment in them. The student of art must start with his handicraft. He must draw and model and what a line means. He must model so as to understand and to be constituted. He must colour and know what tone and shade express. There is wanted in Cambridge continuation studies in archæology and architecture, in which students with the bent of investigation may obtain the habits of observation and comparison on which archæological discovery rest. There is wanted a special class, for whose needs a school of archæology and architecture could long ago to have been instituted. The Cambridge curriculum of theology sends out to nearly half the parishes of England in incumbents and curates. Many come immediately into touch with some of the finest architecture, and some of the most valuable antiquities of art, that our island holds. Our ancient and spiritual and parish churches come under the care of Cambridge graduates, and often obtain what is practically the power of ownership to do what they will with the ancient religious art. With them lies often the decision whether the genius of ancient English art shall be preserved or destroyed. A knowledge of what is in their hands to guard and secure would seem a part of their education. The tragedy has been that, with the best intentions, and often with pathetic exertions to understand, clerical guardians of priceless treasures have been so ignorant (despite a University education), so untrained in the ideas of religious art, that they have wiped out in the last century a very large part of the religious art and religious antiquities that a few years ago our churches everywhere possessed. While there are still art treasures for the Church to keep, would it not be to the advantage of the clerical vocation if clerical students took a course of historical English architecture, and understood what this meant in churches? A school of art preservation in connection with clerical training would also have its proper home in Cambridge, and a school of archæology and architecture could count on his fingers the occasions when acknowledged painters and sculptors of the

English school have in the last 100 years been allowed to show their art in our Cathedrals and churches. Would it not be an advantage for every candidate for orders to be given the opportunity of associating with the understanding the artist at any rate to the extent of taking at its worth what in our churches is often degraded stuff?

BUILDING IN EARTHQUAKE COUNTRIES.*

We have more than once mentioned this useful volume, which was first published just three years since, when the then recent disasters in Calabria and Sicily had stirred up deeply the sense of the necessity for inquiry always more or less prevalent in localities visited by such upheavals. We are glad it has been translated into English, because, although here at home we are comparatively unfamiliar with seismic catastrophes, some of us are called upon, in the various parts of the Empire, to provide against them, and glad to know that there are the fruit of practical knowledge.

As yet, as Sig. Montel remarks, it is only by way of gross approximation that we have come to apprehend the mode of propagation of the seismic forces across the earth in the same manner as across an elastic body. About the only thing we really know is that there are no rotary or vortical earthquakes. Whether their surface, in deeper also, a vertical movement as well as a horizontal one, is matter of controversy. Omori, the greatest Japanese authority, denies the vertical motion; but most seismologists, and the physicists Lord Kelvin and Lord Rayleigh, have taken the other view. Probably it exists, but is slight and difficult to observe. The main question we are interested in is, of course, what materials are best calculated to endure the shocks, and how they should be best employed. Timber is very suitable, but its danger from fire is a grave one, when the conflagration that so often follows an earthquake are borne in mind. Iron is good—or, rather, would be if it also did not so frequently succumb to the action of fire, did not corrode, and were not so expensive. Bricks and masonry are better, if proper rules of construction are observed.

The Japanese regulations for the construction of an earthquake proof house are given at length, with copious diagrams, and also the experiments conducted in Japan as regards the resistance of brick columns. Chapter XI, on the construction of houses of valuable calculations of brick masonry, walls and walls of reinforced concrete. Free wall houses and monolithic houses are next dealt with, and in Chapter XI, we get some useful notes on masonry construction.

On the whole, Sig. Montel's preference is for a building of strictly monolithic construction, avoiding all bold and jutting profiles, and extra weight in the upper parts. Especially he counsels the use of reinforced concrete framework, filled up with masonry. Such mixed construction, he says, is far too liable to disintegration under the influence of seismic forces to be worth recommending. We are inclined to agree with him. Even in their absence we sometimes doubt the stability of some of the structures of that sort we see going up here at home.

Mr. H. E. Hooper, Local Government Board Inspector, held an Inquiry at Brighton on Friday into an application of the corporation to borrow £65,750 for electricity purposes.

The formal opening ceremony of the Sunderland Children's Hospital, which stands off the Durham road, near the Barnes Park, Sunderland, was performed on Friday afternoon by the Earl of Durham. The total cost of the hospital, including the ground, building, and equipments, has been £209,984 10s. 10d., all of which has been raised. The building has been erected by Mr. Joseph Huxley, contractor, from plans prepared by Messrs. W. and T. R. Milburn, architects, of Sunderland.

* Building Structures in Earthquake Countries. By SIG. ALBERTO MONTEL. Translated from the Italian, with Additions by the Author. London, Charles Griffin and Co., Ltd. 2s. 6d.

CURRENTE CALAMO.

We cannot say that anything was added to our comprehension of the "Newer Responsibilities of Architects" by the discussion at the Institute on Monday night. Not a single speaker seemed to grasp the real issues, which we tried to make clear in our numbers of April 26, March 22, and Jan. 5 last. Once more one had to listen about the verdicts of juries, and the judgments of referees on special facts, as if these made binding precedents. Once again much was said of devising means to fix the exact responsibility of architects and specialists in the same apparent ignorance of the law of principal and agent, and of the fact that printed forms of contract are not sacred things, and above all legal rules. Mr. Harrison, the solicitor to the Institute, did not speak on Monday. Probably he thinks, as we do, that at the meeting on April 15 he had told its members clearly enough where they were and what they should do. Perhaps we may once more try to do that—not that any visible results of our previous efforts so far are encouraging!

The eve of the Derby, when a count out is pretty certain tolerably early, found the economists of the House of Commons in full feather, and poor Mr. Wedgwood Benn had a rough time of it on Tuesday. The summer villa on the Bosphorus for the British Ambassador at Constantinople is, no doubt, indispensable to the maintenance of British dignity at Stamboul; but—possibly not for his reasons—we should back Lord Alexander Thynne's protest, and spend the money here at home on housing. Nearly everybody has a statue nowadays, and "Dear Old Charlie" would quite as well ornament Piccadilly as "Peter Pan" does Kensington Gardens. That money would be saved by dispersing the great public buildings is, doubtless, true, and when Lord Alexander Thynne is an angel, or wins the Paris prize as a self-propelled "aviette," there will be no objection to building even as far away as Jerusalem or Madagascar; but, in the meantime, concentration seems worth the money. For the rest, Mr. Borden Cutts' heavy father sort of criticism of the "enormous mass" of masonry of the King Edward memorial, and Mr. Norman Craig's doubtless sympathetic interest in the new ladders of the House helped to kill time till the count out could be managed, and favoured the leisure of members anxious to square their betting-books.

The report of the Departmental Committee on the Science Museum and the Geological Museum, issued on June 4 as a White Paper, shows how buildings may be designed which will provide for immediate developments, but also facilitate arrangements for meeting possible requirements of the future. A sketch plan of the site is given, with an enlarged drawing of the eastern portion, which would be the first erected. This plan shows the position of the proposed new building for the Geological Survey and Museum—a building facing Exhibition road, and forming a part of the ultimate eastward extension of the Natural History Museum while communicating at the same time by connecting galleries with the adjacent new buildings for the Science Museum. The committee report with full confidence as to the development of the museums, and refer to some Continental museums which correspond closely in aim

with the Science Museum, notably the Museum of the Conservatoire des Arts et Métiers in Paris and the Technisches Museum für Industrie und Gewerbe at Vienna.

State portraits of royalties are seldom artistic successes, and Sir Luke Fildes's picture of the King, which was placed in the Royal Academy on Monday in the space reserved for it on the left of Mr. Bacon's Coronation picture in Room III, is not a happy exception. The likeness is good enough, but the King's face is serious, almost to the point of nervous constraint. On the whole, the artist's task should have been an easier one than in the case of his portrait of King Edward ten years ago. The dark blue of King George's naval uniform does not clash with the regal crimson mantle, as the scarlet field-marshal's coat of his father did. But King Edward's picture was the better one. The deep yellow of the curtain throws up King George's figure too vividly, and the rendering of the train of the crimson mantle is rather slovenly. Sympathetic, however, with any artist who has to invest with human interest subjects clothed in the uniform of 20th-century European royalty or officialdom must disarm all serious criticism.

Bristol is one of the growing centres of human life and enterprise of the kingdom, and has so well kept abreast of its responsibilities in other matters that it is hard to believe it will not ere long provide itself with adequate municipal buildings. There must be considerable wastage of time and money in having so many of the administrative departments scattered over the city. The docks and city engineer's departments occupy separate buildings in Queen-square, the dock engineer's offices are at Cumberland Basin, the health department is housed in Prince-street, and the electricity department at the Exchange. The advisability of securing some central site and adopting a comprehensive scheme of municipal buildings has been advocated again and again, committees have been appointed, and recommendations submitted, but there the matter has ended, and the delay seems to have increased the difficulty, because some of the best sites suggested as suitable for the purpose are no longer available. Visitors are certainly not favourably impressed when the Council House is pointed out to them as the seat of Bristol's municipal government, and the want of an imposing building is emphasised on important occasions, such as the forthcoming Royal visit.

Everyone must have laughed at the industrious pertinacity with which visitors collect samples at exhibitions. There is a man in our road who proudly exhibits an "irregular structure" in his back garden which he boasts from floor to roof was built with samples obtained at a building exhibition, and with materials for which some of the samples were exchanged with friends. Sometimes you can manage the exchanges at the exhibition, on the same principle by which the baker manages to get his own Sunday joint for nothing, especially if you plead in the cause of piety or charity. At a recent show of the sort in Trient, in the South Tyrol, according to a story in the *Manchester Guardian*, an exhibition of steps and ladders formed the most striking feature. A young Capuchin monk stood looking at the ladders with longing eyes. His monastery wanted a tall ladder badly; but time were

bad, and offerings scanty. Suddenly, a brilliant idea struck him. He went up to the owner of the smallest ladders at the bottom of the row, and meekly asked him whether he could not present him with a small pair of steps for the monastery. The man was a good Christian; the article was of small value, so he readily agreed.

The friar took the ladder and blessed the generous giver. Instead of going home, he went to another stall, where the exhibitor had to dispose of large ladders. Would he not, in the name of the Blessed Virgin, exchange the small ladder for a somewhat larger one? He offered the request so humbly and so sweetly that the owner did not the heart to refuse him, and the monk obtained a ladder still, he was taller by two rungs than the first. Again he took the steps offering and went to another stall; the owner of still larger ladders at last again repeated his request for a slightly larger one in exchange for the one he had, and again he carried off the trade. In this way he went up the whole line of ladders, and before he reached the top his height was added to. He got the tallest ladder in the market, and returned to the monastery, where that he had deserved well of the monks' mendicant order to which he belonged.

Congratulations to Mr. Thomas Hardy on his seventy-second birthday, which he attained last Sunday, have quickly followed those tendered on his recent selection for the award of its gold medal by the Royal Society of Literature. It is just fifty years ago that one since Mr. Hardy was a prize-winner at the R.I.B.A. If the *Westminster Gazette's* reminiscences this week are authentic of him it will never be recorded—

"My only books—

Were women's loaves,

And fully all they've taught me."

For, according to our contemporary, his earliest attempts as a scribe consisted in the inditing of their love-letters to their sweethearts in India for the girls of his native village. Most enviable of all apprenticeships to the gentle art of fiction, surely!

Additions in the form of class-rooms, etc., are being carried out at the Fernie Park Baptist Church and Schools, Herney, N. by Messrs. Bartley, Sons, and Hones, of 21, Old Kent-road, S.E., the contract amount being £1,511. The architects are Messrs. George Bann and Son, 5, Clements-street, Strand, W.C.

According to the *Montreal Daily Witness* at May 2, the plans of the new City Hall and annex have been approved by the board of council. The building will have granite foundations and a sandstone superstructure, and will serve as police headquarters, recorder's court, and medical health department. Tenders for the construction of the building will be invited in the near future, and it is expected that the building will be occupied in a year.

On his retirement from the position of resident architect at Windsor Castle, Mr. A. Y. Nutt, M.V.O., has received a number of presentations from various departments as an acknowledgment of his forty-four years' service at the Castle. Among these was a silver-mounted drawing-case presented by the staff of his Majesty's Office of Works, the Lord Chamberlain's Department, contractors, workmen, and friends at the Castle. Mr. Nutt, in acknowledging the present, said it had been stated by the ancient sages that "the tree of deepest root is found least willing to quit the ground," and he felt that after over 44 years on the Castle soil his roots had entangled themselves not only in the soil, but in the hearts of very many kind friends, and he felt acutely the wrench that old age had forced upon him. Mr. Nutt also received a gift from the Windsor Castle police, in the form of a silver cigarette case.

to this thrust through the bracing into the material will be transmitted through the haunches of what may be termed a series of arches, which will lie between planes which have been assumed to be approximately parallel to the planes of repose. These will, in turn, resist the tendency of the wedge, of which they are a part, to slide along the plane of rupture toward the toe, the condition of stability being the tightness of the bracing holding it in place. It may be added, in parentheses, however, that, failing to make the bracing and bracing absolutely tight, it will be made so automatically by the gradual settling down of the material, providing the settlement does not come with sufficient force to cause shock or collapse. A series of independent, dependent, and finally interdependent arches or sections of arches are thus formed, whose lines of thrust, as stated, is assumed to be along the planes of repose, and the measure of whose thrust is proportional to the cotangent of this angle of repose, and whose area lies between the vertical and a plane bisecting the angle between the vertical and the plane of repose. That is, let—

ϕ = the angle of repose, and $\frac{90^\circ - \phi}{2} = \beta$ = the angle between vertical and plane of rupture, and h = the height. Then—

$$\text{area} = A = h^2 \cdot 2 \cdot \cot \beta = h^2 \cdot 2 \tan \phi.$$

Its thrust at any point—

$$= T_p = a W \cot \phi,$$

W being wt. per cubic foot of material, and a being area of material at any point causing thrust T_p . Or the thrust over entire area—

$$= T = A W \cot \phi = h^2 \cot \phi \tan \phi.$$

Obviously, if this thrust is due to a series of arches, its point of application will be through its centre of gravity, which will be two-thirds of h above the toe, and the moment per linear foot tending to overturn a wall or structure will be

$$M = T \times \frac{2}{3}h = h^3 \frac{1}{3} \tan \phi. \quad \text{Cot. } \phi.$$

So far, consideration has been given only to those materials normally dry—i.e., as ordinarily found under normal conditions, where not saturated or submerged, and commonly called dry ground. Saturated materials will now be taken up under the head of Wet Ground, and will include only ground which is temporarily or permanently submerged, so that the water therein or the ground itself is under hydrostatic pressure. For a clear understanding of materials in this class three subdivisions will be made: (a) Those materials in which the voids are defined, such as gravel, gravel and sand, or sand in which there is not a large percentage of soft material. Material of this class may be called "firm ground." (b) Those materials of which the voids are filled with fine material, largely in suspension in the water, such as sands mixed with silt or clay. This may be called "semi-aqueous material." (c) Those materials, such as fine silt, very soft clay, very wet, freshly mixed concrete or mud, or any material which flows under normal pressure. These may be called "aqueous materials." Of these materials, the last, or aqueous, may be left out of consideration, as the laws applicable to them are obviously the same as those belonging to water itself. In this connection it should be noted that the hydrostatic pressures resulting from these materials should be figured on the specific gravity of the existing fluid and not on weight—that is, for instance, wet concrete will not give a hydrostatic pressure due to the weight of 140lb., but of 62½lb. per cubic foot, due to the fact that the solid particles in suspension derive buoyancy from the presence of the water until they settle down and cease to exert pressure, except as a solid. Consideration of Class A materials, or firm ground, will now be taken up, and may lead to a better understanding of the conditions governing those materials of Class B. In connection with the sand arch experiments first described, an additional experiment was made. A box of 9in. cube was used, similar to that described, with false bottom, except that the front was made of glass. This box was filled with sand to a depth of about 5in.,

the washers keyed down tight, to insure that the false bottom was pressed up tight against the open bottom of the box. Water was then poured into the box, and even after saturation was complete, as observed through the glass side, there was no failure or collapse when the box was lifted, with the water standing as high as 2in. above the sand. This demonstrated conclusively that in small volume at least the pressure of water does not destroy the arching properties of sand. In the second experiment made, the apparatus was complete, with a hydraulic chamber 12in. in diameter and 18in. high, whose top contained a collar through which went a piston some 2½in. long and 3in. in diameter. Connected to this chamber was a nipple connecting by copper hydraulic pipe to a pressure-pump and gauge. The piston was first lifted and held about 6in. off the bottom; water was pumped into the chamber, and the pressure required to lift the piston further was noted. This was repeated and was found to be uniform. A table standing on 8in. legs, with a hole through which the piston fitted loosely, was next put into the chamber. This table contained pipes, so that water could circulate from above the table to below it, and the sides above the table around the pipe. The table was complete to a depth of some 6in. It is readily seen that the area of piston against which the water impounded was not reduced, but that the friction of the sand bearing on the piston could be measured if appreciable. As the piston was a polished surface, it was found that this friction was negligible—i.e., in a gauge registering pounds only it could not be measured. The table was then removed and the bottom filled with sand to a depth of 6in., the piston put in place bearing on the sand, and 6in. more sand put in surrounding the piston. It is seen that, neglecting friction, if the area of the piston's base was not reduced by its contact with the sand, it would rise under the same pressure as that required to raise it in clear water. A series of tests proved, however, that it required to raise approximately double the pressure to start the piston from that required to continue to raise it after it started, due to the fact that, on the formation of a water pocket between the piston's bottom and the sand, the pressure of the water on the full area of the piston was brought to bear, whereas when in contact with the sand, its area was reduced by the proportion of the contact. It is believed that an experiment along these lines on a much larger scale will be of great value in clearing up a mooted question among engineers. It must be admitted, even in the case of the smaller experiment, however, that one of two conditions must have obtained—either the water, through numerous minute channels, was in contact with the base of the piston, in which case fluctuations of pressure would immediately be transmitted from the clear water at the top to the base of the piston, and, in fact, that the piston did not rise until double the pressure had been exerted, thus showing a reduced area; or, on the other hand, it must be admitted that there was no continuous contact of water, and that "heads" had first to be opened before pressure could be transmitted to the piston's bottom. The latter be true in so small a chamber, it must undoubtedly be true in practice, that a submerged structure is not under buoyant pressure because of the fact that the channels of water leading from the clear water to the structure are not continuously in contact. The writer prefers to believe that the first condition is true, and that continuous channels lead from the structure to the clear water, these channels being independent in a measure of the so-called columns of sand in between. For instance, if a chamber be taken containing a piston whose specific gravity is less than that of water by the smallest fraction, and it is assumed that its polished bottom is in contact with the sand, and that the chamber is not flooded, of course, be buoyant when the chamber is flooded. If again, a series of smaller rods, with polished tops, perfectly flush with each other, be wedged into a pipe, and if a piston, as described, be set on them, it will not rise because the buoyant area is not sufficient to cause it to do so. The writer holds that the

same reasoning is true if sand, packed or welded into the bottom of the pipe, be substituted for the rods, and he believes that the experiments noted have shown that a piston or structure resting on or turned in sand has what may be termed its buoyant area reduced by reason of that contact. Some reasons for this assumption, aside from the experiments, will be noted later. As to the application of this theory to practical conditions, the pressure over the roof of a subaqueous tunnel in firm ground, or Class A materials, will first be noted. In such materials there will undoubtedly be two classes of pressure—the wholly aqueous or hydrostatic, and the other due to the solid material. If it is assumed, for a better understanding, that the material is coarse sand with a percentage of voids ϕ , with a normal angle of repose, it should first be noted that material of this character will have its angle of repose increased by reason of its submergence, and for safety it may be assumed that it is 50 per cent. greater than when normally dry. The thickness of solid material at which the arching properties would be effective would be

$$L = 2 \tan \phi.$$

above the springing line of a tunnel if circular, or above the roof if flat, L being the greatest outside diameter or width of roof, and other factors being as follows:

$$\begin{aligned} \phi &= \text{angle of repose,} \\ \phi &= \phi + 50^\circ - \phi \\ &2 \end{aligned}$$

Assuming then a depth of material d as equal to or greater than

$$L = 2 \tan \phi,$$

the conclusion is that all solid material at and above that elevation is carried by its own arch, and as well the pressure of water on all material, which, by reason of continuous contact to the tunnel, is assumed to be the equivalent of a number of solid columns. Between these columns the water pressure acts independently, i.e., for the weight per linear foot (W_p) in a tunnel of outside width (D), we have, assuming a depth of water (h) and a depth of material (d) of the conditions noted, W being the normal weight per cubic foot of the solid material and 62½lb. being the weight of water. Assuming a percentage of voids in the material ϕ , as above, then

$$W_p = \frac{W D}{2} (1 + L \cdot L \cdot 2 \tan \phi) + 62.5 D \cdot L.$$

or $W_p = W D \frac{1}{2} (1 + \tan \phi + 62.5 D \cdot L \cdot \phi)$ condition as noted above, where $d \geq L$, $L = 2 \tan \phi$. Where—

$$d < L, \quad L = 2 \tan \phi.$$

$$W_p = W L \frac{1}{2} + 62.5 L \cdot (d - L) + \frac{1}{2} W D.$$

That is, the assumed solid columns bearing on the tunnel transmit to the tunnel the added weight of the water bearing on them, but not the weight of the water which they displace, since they cannot bear on the tunnel at the same time as the water. If it were assumed that the exact weight of the columns over that of the displaced water bore on the tunnel, then

$$W_p = W - 62.5 L \cdot d + 62.5 L \cdot D.$$

It is seen from the above reasoning that if a tunnel of a width of 20ft. outside with 50ft. of covering, the weight of its roof is as great as one in which the covering is 40ft., assuming equal depths of water to the roof. Comparing the last two formulae, we find in a tunnel with

$$\phi = 40 \text{ per cent.}$$

$$L = 20 \text{ ft.}$$

$$D = 10 \text{ ft.}$$

$$d = 50 \text{ ft.}$$

$$W = 100 \text{ lb. per foot,}$$

then—

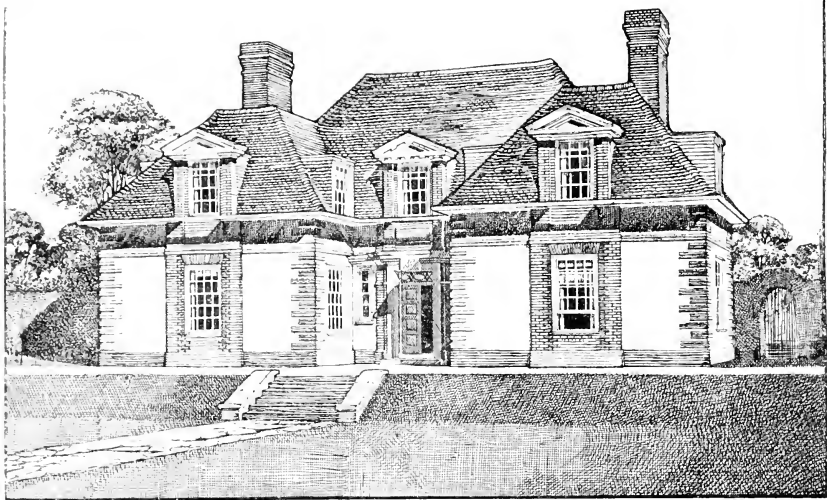
$$W_p = 162.5 \text{ tons.}$$

or a little over 4 tons per square foot, while in the second instance,

$$W_p = 142,000 \text{ lb.}$$

or a little over 31 tons. The writer prefers to consider that the former instance is more in accord with the correct theory and safer in practice. As to the pressure against a sheeted face, coffer-dam, or retaining wall, here again there are independent pressures to consider. First calculate the pressure of the solid material against a wall, as noted,

HOUSE AT HARPENDEN FOR ARNOLD H. HOOLE & CO.



MR. J. E. DIXON SPAIN, Architect.

bearing in mind that such material, when submerged, will stand at a steeper angle of repose, and, therefore, the thrust due to the pressure of this material is lessened by its submergence; then, calculate the water pressure separately, assuming that it acts in the same way as does water alone, except that it is diminished by 60 per cent. if 40 per cent. voids are assumed. This should not be taken to mean that the pressure at any point is only 40 per cent. of what it normally would be, but that the area over which the pressure is distributed is only 40 per cent. of the whole. The sum of these two independent pressures constitutes the total pressure against dam or structure, and, with proper qualifications as already noted, the pressure against any given point.

(To be continued.)

HOUSE AT HARPENDEN

This is a small house, with external walls in stone, brickwork with cavity, and externally plastered. Dressings and quoins are in red bricks, and the roof-covering is of hand-made tiles. Mr. J. E. Dixon Spain is the architect, and his drawing herewith reproduced hangs this year in the Royal Academy. By a piece of carelessness this description appeared last week without the illustration, which we now give.

CONCRETE COSTS*

This is an English edition of a most voluminous treatise of over 700 pages. Its distinctive feature is that the information given is the result of practical observation. For three years as gang boss and foreman at a Philadelphia steel company's shop, one of the authors had a continuous struggle with

his men while trying to get them to do a proper day's work under the old piecework system. Over and over again it was brought home to him that neither he nor the men knew how long it really ought to take to do a given job. It was the interest of the men to "go slow," and still convince the boss they were doing their best; while it was the determination of the foreman to make them do better. Hence constant strife and bitter and antagonistic relations.

Consequently, Mr. Taylor set to work to find the time a first class man should take to make each of the elementary movements into which all work may be subdivided. Adopting these "unit times," as they were called, the men were shown they could work far more efficiently than before, with but little greater effort, and earn a bonus of thirty per cent. or more on their wages. Strife ceased, and the men co-operated heartily. Such success followed that in 1891 Mr. Taylor and Mr. Thompson joined hands in an effort to apply the principle to the building trades. It has taken them seventeen years to get this book out. How far the system would succeed here we should not like to say; but the book is well worth study, the more so because it covers cost generally, and abounds in hints that any practical man can adapt, even if he does not adopt them entirely.

INTERNATIONAL EXHIBITION OF THE BUILDING TRADES, MAY TO NOVEMBER, LEIPZIG, 1913.

In 1913—a year replete with historical memories to Leipzig, and in which the majestic structure of the Monument of the Battle of Nations will be dedicated, in the presence of his Majesty the Emperor and his Majesty the King of Saxony—a peaceful contest will take place on the area where, a hundred years ago, the mighty struggle with the great Corsican occurred. The civilized nations will meet in a Universal Exhibition of the Building Trades and Homes. This

exhibition is under the protectorate of his Majesty King Friedrich August of Saxony. The Exhibition will be divided into the following divisions, supplemented by scientific lectures and moving pictures:—

Section I.—Architecture in eight: Towns and settlements; underground and over-ground construction; inner decoration; technical art trade; homes and their decoration; architectural painting and sculpture; gardens and parks; cemeteries and their ornamentation; monuments and their care; conservation, etc. In addition, thirty-three subdivisions.

Section II.—Literature of the building trade; trade schools; office furniture. Three groups.

Section III.—Building materials—their manufacture and use. Twenty groups, comprising stone, wood, building ceramics, art stone, cement goods, concrete and reinforced concrete. Heating plants, lighting plants, etc. Furthermore, twenty-four subdivisions.

Section IV.—Machines, tools, and implements for building purposes. Five groups, with two subdivisions.

Section V.—Real estate transactions; information and insurance; bookkeeping, etc. Five groups.

Section VI.—Hygiene in the home, factory, and street; protection and welfare of workmen; protection against fire. Six groups.

Section VII.—Gymnastics, games, and sport.

Section VIII.—Testing of building material; lectures on the trades.

The cottage settlement at Leipzig-Marienbrunn, which is a permanent institution, is a garden town composed of eighty-five solidly-built, tenanted houses, about 400 metres distant from the Exhibition grounds. The City of Leipzig will have a display of the evolution of municipal building in a separate pavilion. The Saxon State is also contemplating an exhibition of State architecture in a separate palace. Although the Exhibition will not be opened for a year, the

* Concrete Costs: Tables and Recommendations for Estimating the Time and Cost of Labour Operations in Concrete Constructions, and for Introducing Economical Methods of Management. By FREDERICK W. TAYLOR, M.E., Sc.D., and SAMUEL F. THOMPSON, S.B. London: Chapman and Hall, Ltd.

proportions of the Machine Hall have had to be enlarged several times, the space placed at the disposal of the machine industry not sufficing. Considerable space—in fact, up to 5,000 square metres—has been acquired by several leading firms. Contracts for space yielding 350,000 marks in rent have been made up to date.

Negotiations are now in progress with foreign countries, promising extensive participation on their part at the Exhibition. Austria and Italy are manifesting uncommon interest; an organisation for the Exhibition has already been formed, and is actively at work. Roumanian manufacturers have obtained 1,000 square metres of surface at the International Exhibition of the Building Trades at Leipzig, 1913. The enterprisers purpose the erection of a moving picture show displaying the extraction of raw material and its treatment in Roumania, as also of Roumanian industrial products. In fact, giving a clear idea of the development of industry in Roumania. During the intermissions, pictures of Roumanian life are to be produced. There is likewise to be a collective exhibition of the products of Roumanian industries and crafts. Numerous congresses of leading economic and trade associations will meet in Leipzig in 1913. At the same time a number of strangers are expected in Leipzig during the time of the Exhibition. In addition to the large number of regular visitors to the Leipzig Fair, there will be a large attendance at the General German Athletic Meet, which takes place in Leipzig in the summer of 1913. Furthermore, hundreds of thousands will visit the city to take part in the unveiling of the Monument of the Battle of Nations. A whole week of celebration, including a historical procession dedicated to the memory of 1913, has been arranged.

The grounds cover an area of approximately 400,000 square metres. In the axis of the broad representation street of the Exhibition—the extension of the Monumental "Street of the 18th October" which is to be built by the City of Leipzig, and will lead to the monument—there is to be erected a bridge over the cutting of the Leipzig-Hof communication railway. This bridge is to be a permanent structure. The substructure is to be built at the expense of the city; the superstructure, which is to be such ornament and of superior architecture, at the expense of the Exhibition. In addition, there will be a foot-bridge leading from the Exhibition side of the cutting to the park. This park, for recreation and amusement, will occupy an area of about 45,000 square metres.

Just at the right of the entrance in Reitzelmanns-strasse, the numerous buildings of Old Leipzig representing the city at the time of the War of Liberation, will be erected. The old gates and fortresses will rise once more, the old Pleissenburg, the University Church as it was before its renovation, and many other buildings, streets, and courts. From this entrance an avenue of two hundred large, newly-planted trees will lead towards the city, and from the administration building of the Exhibition to the principal street, and crossing it to the extreme west portion of the grounds. The principal entrance of the Exhibition, on the side nearest the city, which is to be used chiefly for representative purposes, is in the direction of the "Street of the 18th October." Its portals will afford a fine view of the grounds and across the bridge to the monument which finishes the picture.

The parish institute at Dersingham North-West Norfolk, was opened last week. It is built of cast stone, with red brick dressings, and cost £800. Mr. W. Jarvis, of Lynn, was the architect, and the builders were Messrs. Chambers, of Dersingham.

At the monthly meeting of the Wallace Town Council yesterday (Thursday), the resolutions of the special works committee, that the town clerk be instructed to apply to the Local Government Board for sanction to use the North Meade site for the purpose of a town-hall, and to borrow £80,000 for the total cost of the proposed new town-hall, were confirmed.

OBITUARY.

We regret exceedingly to announce the death of Mr. Frederick Ingle, so long associated with the firm of Messrs. Bennett and Ingle, the pioneers of the famous "Bennett and Ingle" firm. Mr. Ingle died, after a brief illness, on the 29th ult., at his country home, in Northamptonshire, Colchester, near Grantham. His age was seventy-three. We believe in early life he was with the late Mr. T. C. Hine, F.R.S., architect, of Nottingham, and then joined the firm of Messrs. Robert Bennett and Co., of the same city. His active co-operation in London did much to bring about the system of building construction introduced by the firm, which originally in Craven-street, and then in Whitehall, has of recent years had its London offices at 24, Queen Anne's Gate. Mr. Ingle never married, but few men have been as widely esteemed, and none more deservedly so, and by all who knew him his death will be very sincerely regretted.

The death took place at Conway on Wednesday of Mr. Clarence Whaitte, the President of the Royal Academy of Fine Arts and of the Royal Cambrian Academy. Mr. Whaitte was eighty-four years of age, and was the oldest member of the Royal Society of Water-Colour Painters. He was a native of Manchester, and was educated at the Grammar School and School of Design of that city, at Lee's Royal Academy, Newman-street, West, and at the Royal Academy Schools. Most of his later days were spent in North Wales, where the romantic scenery suited his temperament. Mr. Whaitte almost alone continued the Turner tradition, and up to the end his work retained its masterly craftsmanship. Turner's influence at its best is seen in "A Butress of Spennorth" and "Just arrived by the boat" both in the Manchester City Art Gallery, where also is shown a bust of him by Mr. John Cassidy.

Widespread regret will be felt by members of the architectural profession at the loss sustained by the death at Heidelberg, Germany, on Sunday last, at the age of sixty-six years, of Mr. Daniel Hudson Burnham, M.A., Ph.D., LL.D., of Chicago, the chairman of the American Commission of Fine Arts and one of the leading architects in America. Mr. Burnham, who was born in 1846 at Henderson, New York, was a student of architecture at Chicago, to which city his parents had removed when he was nine years of age. He established in 1872 the firm of Burnham and Root, Chicago, and in the course of their career designed many of the best-known buildings in that city and elsewhere. In Chicago itself Messrs. Burnham and Root designed and carried out the Temple, the Masonic Temple, the Illinois Trust Bank, the First National Bank, the Railway Exchange, the Great Northern Hotel, Marshall Field's retail store, and the Ashland, Fisher, Reliance, Rookery, and Stewart buildings. Mr. Burnham was chief architect and director of works at the Chicago Exhibition, 1893 to 1896, and chairman of the national committee for beautifying Washington and Cleveland. He also planned the cities of Manila, Baguio, and San Francisco. Mr. Burnham was a Fellow of the American Institute of Architects, and served as president of that body in 1894. Eighteen months ago he was elected an honorary corresponding member of the Royal Institute of British Architects, just after the Town Planning Conference at Conduit-street, at which it will be recollected he presided over one of the sections and delivered, in deliberate tones and in an impressive manner, an address on "Human Progress and Promise"; he also responded in a felicitous speech for "The Guests" at the Conference dinner given at the Hotel Cecil.

The death took place at his residence, Juniper Green, on Sunday last of Mr. Peter Lyle Henderson, F.R.I.B.A. Mr. Henderson was sixty-three years of age, and had been in failing health for some considerable time past. He had at one time an extensive practice, and a number of the breweries in Edinburgh and district were built to his

plans. He was a prominent Freemason, having been Right Worshipful Master of Mary's Chapel Lodge, and one of the founders of the Past Masters' Association of the Metropolitan District. In 1879, Mr. Henderson defeated the late Baronet Ashton in the municipal election contest for the representation of St. Andrew's Ward, but in a petition being presented to the Sheriff he was unseated, and Mr. Colston declared elected. He was a member of the Edinburgh High Council, and in 1889-90 he held the office of Alderman.

Peter Kerr, the well-known Melbourne architect, whose death was recently announced at an advanced age, was, says the R.I.P.A. Journal, for many years a Fellow of the Institute, but resigned membership a few years ago, having been long retired from practice. Mr. Kerr was attached to Mr. Archibald Simpson, of Aberdeen, over seventy-three years ago, and was afterwards in the office of Mr. George Foster Jones, of New York. About the end of 1845 he removed to Dunrobin Castle, Glasgow, where he was engaged on the extensive additions to the castle. On the completion of his work he came to London and entered the office of Sir Charles Barry. In 1852 he emigrated to Australia, and after a brief experience of cattle-raising on the Upper Yarra near Melbourne, he returned to his profession as an architect in Melbourne, first in partnership and subsequently on his own account. His principal works included the Harbour Trust Offices, the Chinese Court of Arbitration, Port Phillip Club Hotel, and the first part of the Houses of Parliament. In 1877 he entered the Government service, and was appointed by the Royal Commission of Parliament Buildings as their architect for the Houses of Parliament. Mr. Kerr had a share in execution, detailing, and carrying into design Government House, the new Law Courts, and the Public Office. He also carried out the Registrar-General's Office, and extensive additions to the General Post Office.

Mr. William Harrison, A.R.I.B.A. of 15, Old Jewry, E.C., died on Friday last at 71. His name was Bagnall, and he was sixty-seventh year. He had been an Associate of the Royal Institute of British Architects for twenty years.

A new infant school at Heron Cross, Fenton, Staffs., was opened on Friday. It provides accommodation for 250 infants. The builders were Messrs. Ball and Robinson, of Stoke-on-Trent.

The Carnegie Trustees of Dunfermline have invited architects throughout the country to submit competitive designs for the erection of an institute adjoining the bowling green in Netherbow-street.

A Local Government Board inspector has held five inquiries on the application of the rural district council of Bourne, Lincolnshire, for a new sewer nearly 4,000 ft. long, the cost of about 24 cottages in the Deeping and Bytham districts.

The exhibition gallery of the Department of Prints and Drawings at the British Museum, which has recently been closed for rearranging, will be reopened to the public to-morrow (Saturday) with an exhibition of drawings by European artists acquired by the department during the last eight years. Besides a unique collection of drawings by Titian, there are also examples of many of the greatest masters, English and Continental, from the sixteenth to the present day. The exhibition will remain open until the new wing of the museum is sufficiently far advanced to allow of the transference of the department to its future quarters.

Some discoveries have just been made in the course of some work of preservation at Whitcomb Church, Dorset, and the fact that the choir of the post William Barnes. Three large sections of a finely-carved Celtic cross have been discovered in the course of rebuilding the east wall of the chancel, which contains a well-proportioned three-light window. The architectural details have also been discovered, having been walled up probably during the Puritan period. The removal of the plaster on the north wall of the nave has revealed a part of a fresco, representing 15th century arching, and the customary figure of St. Christopher, supporting on his left shoulder the infant Christ, who is holding the orb surmounted by a cross.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—An ordinary meeting of the Council of the above body was held at 31, South Frederick-street, Dublin, on Monday last. The President, Mr. A. E. Murray, R.H.A., F.R.I.B.A., was in the chair. There were also present Messrs. W.

Kaye-Parry, L. O'Gaghan, H. Allberry, A. G. C. Mullar, J. F. Welch, J. Hayes, G. P. Sheridan, F. G. Hicks, Professor Scott, and C. A. Owen, hon. secretary. The minutes of the ordinary meeting of May 6 and of the special meeting of the 15th were read and signed. A large amount of correspondence was dealt with. A discussion arose as to the projected public meeting to be held in connection with the School of Architecture at the National University, and the committee dealing with the subject were asked to report on the present position of the matter. The question of nominating an assessor for the forthcoming competition for the new Municipal Building was under review. A motion in connection with the scheme of examination was considered, and referred to the Examination Committee. Professor Scott was appointed to draw up the particulars for the Institute prize to be competed for by members of the Architectural Association of Ireland.

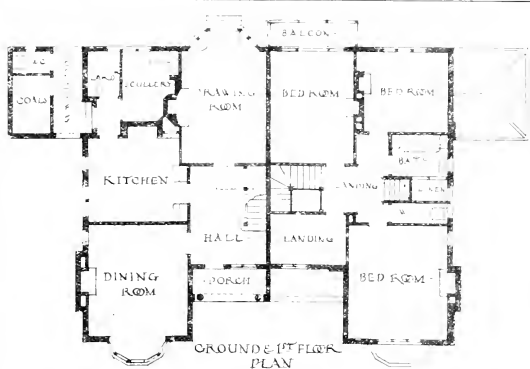
THE SURVEYORS' INSTITUTION.—The forty-fourth annual report of the Council, submitted at the annual general meeting last Monday, records an increase of 205 over the total at the end of the Institute year in 1911. The main item calling for comment in the balance sheet for 1911 is the sum of £7,058 paid on account of the building extension now in progress. This payment was partly provided for by the £2,500 brought forward on deposit at the beginning of the year. The building operations have necessitated an overdraft at the bank; but, unless unforeseen circumstances arise, the Council hope to put off the outstanding balance during the current year without sale of securities. The receipts from the hire of rooms were necessarily affected by the building operations, and fell from £342 to £212; but there are indications that this loss will be more than made up during the present year. The large increase which was recorded last year in the number of candidates presenting themselves for the Institution's examination has been continued, the total, 1,223, being 318 in excess of 1911, which in its turn was 132 more than the highest previous record.

THE ANTIQUITY OF HOT-WATER PIPES.—At a recent lecture to the Cardiff Building Students' Society, Mr. W. H. Allen said that the notion of hot water in pipes was of great antiquity, and the method of heating baths by passing the water through a coil of pipes which passed through a fire was known and practised before the Christian era. The earliest tubs, of brass, they were precisely similar, both in form and arrangement, to those occasionally used at the present day. The origin of the invention of employing hot water for diffusing heat appeared to be hidden in considerable obscurity. It seemed to be used first in France in 1777, and was employed by a B. Bonnemain for hatching chickens by artificial heat.

The death is announced of Mr. J. Scott, who, since 1858, has acted as assistant surveyor under the Antrim County Council.

Plans of a new church for St. Mary's congregation were presented on Monday at Motherwell Dean of Guild Court by the kirk-session of Dalziel Parish Church. The site of the church is in the west end of the burgh, surrounded by a villa population. Accommodation is being provided for 600 worshippers, and the cost of the church and small hall is estimated at £4,000. The Court approved of the plans.

As a result of a consultation with Mr. Norman Shaw, R.A., the town hall extension committee of the Bradford Corporation has decided to erect in 1907-9 from plans by Mr. F. E. F. Edwards, A.R.I.B.A., then the city architect of Bradford, who was associated in the work with Mr. Norman Shaw; plans and views of this extension appeared in the *Building News* for September 14, 1906. The extension, a grand staircase that is contemplated has been devised by Mr. R. G. Kirby, F.R.I.B.A., and was illustrated in our issue of September 8, 1911.



HOUSES, BUXTON ROAD, LEEK.—MR. R. T. LONGDEN, ARCHT.

Our Illustrations

LLOYD'S NEW BANK, ST JAMES' STREET, S.W.

This drawing is exhibited at the Royal Academy, Messrs. Waller and Son are the architects. We have no further particulars.

NEW HOSTEL, SPRINGFIELD MOUNT, LEEDS: FOR THE COMMUNITY OF THE RESURRECTION.

The plan of the complete scheme is designed in the shape of a semi-quadrangle, with a front to Springfield Mount about 170 ft. long, and east and west wings about 77 ft. long. The semi-quadrangle is open to the south, except for the dwarf wall shown in the foreground of the accompanying picture. Mr. Temple Moore, F.R.I.B.A., is the architect. The first portion, comprising the central tower and half the front to Springfield Mount and the east wing, was built about two years ago. This part already erected includes a large hall, common room, smoking-room, common study, grand staircase under the tower, kitchen, offices, servants' quarters, and thirty-two bedrooms. The portion yet to be built includes the chapel and vestries, warden's rooms, and further study and bedroom accommodation. The accompanying illustration is from the perspective in this year's Royal Academy.

NOTGROVE MANOR, GLOUCESTER-SHIRE.

This drawing is now at the Royal Academy, showing the entrance front of this country house, of which Mr. A. N. Prentice, F.R.I.B.A., is the architect. Messrs. Saunders and Son, of Cirencester, are the builders. We gave a bird's-eye view of the building from the other side, and a plan in our issue for May 6, 1910. The church adjoins the grounds. The manor-house was formerly occupied by a farm, and dates from the Tudor period. The kitchen wing is entirely new, and the drawing room has been added, with many other extensions now finished.

HOUSES, BUXTON ROAD, LEEK.

These houses occupy a site having extensive views; hence the freedom from projecting offices at the rear. They are built of brick and roofed with hand-made tiles, with the courting, springs, etc., to gables. The contractor was Mr. T. Grace, of Leek, and the architect Mr. R. T. Longden, of Stoke, Porslem, and Leek.

CHURCH OF ST. ANDREW, CLEVELEYS.

Mr. R. H. Cunliffe is the architect of this church. We have received no description.

ST. RAPHAEL'S, BUXTED.

This is by Mr. J. George Carter, F.R.I.B.A.; but no response has followed our application for more details.

Swan Corner, Loughbeek, regarded by motorists and pedestrians as one of the most dangerous in the South of England, is to be improved at a cost of £500.

The ancient bells of Guildwall Parish Church, recently repaired and relung, at a cost of £360, subscribed by the parishioners, headed by the Marquis of Salisbury, were re-intoned on Tuesday.

Mr. F. O. Stamford, A.M.I.C.E., Local Government Board Inspector, has held an inquiry at the Town Hall, Tiverton, into the application of the Tiverton Town Council for sanction to borrow £3,350 for the purpose of widening 640-ft-street and Lowman Bridge. There was no opposition.

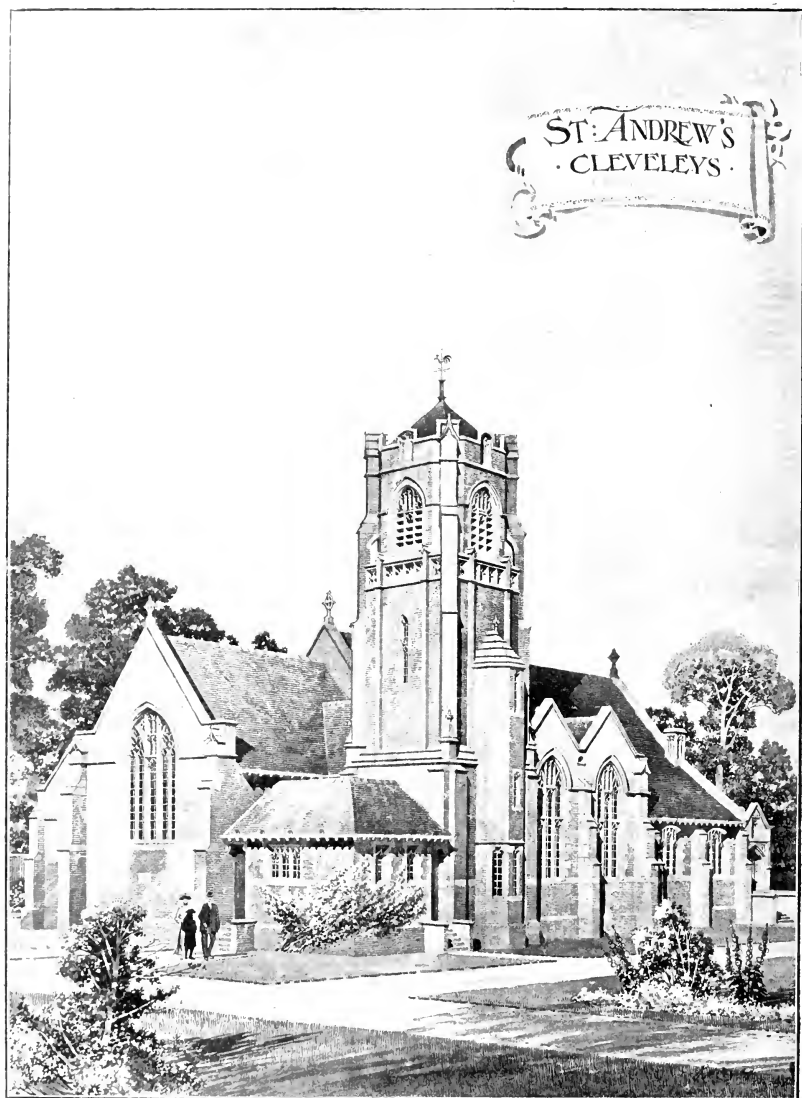
The Lord Mayor of Bradford laid on Tuesday a memorial stone at the new Great Horton branch library, which is now in course of erection. The library is to provide accommodation for 12,400 volumes, and the principal entrance is to be from Crossland. The cost of the building is estimated at £2,500.

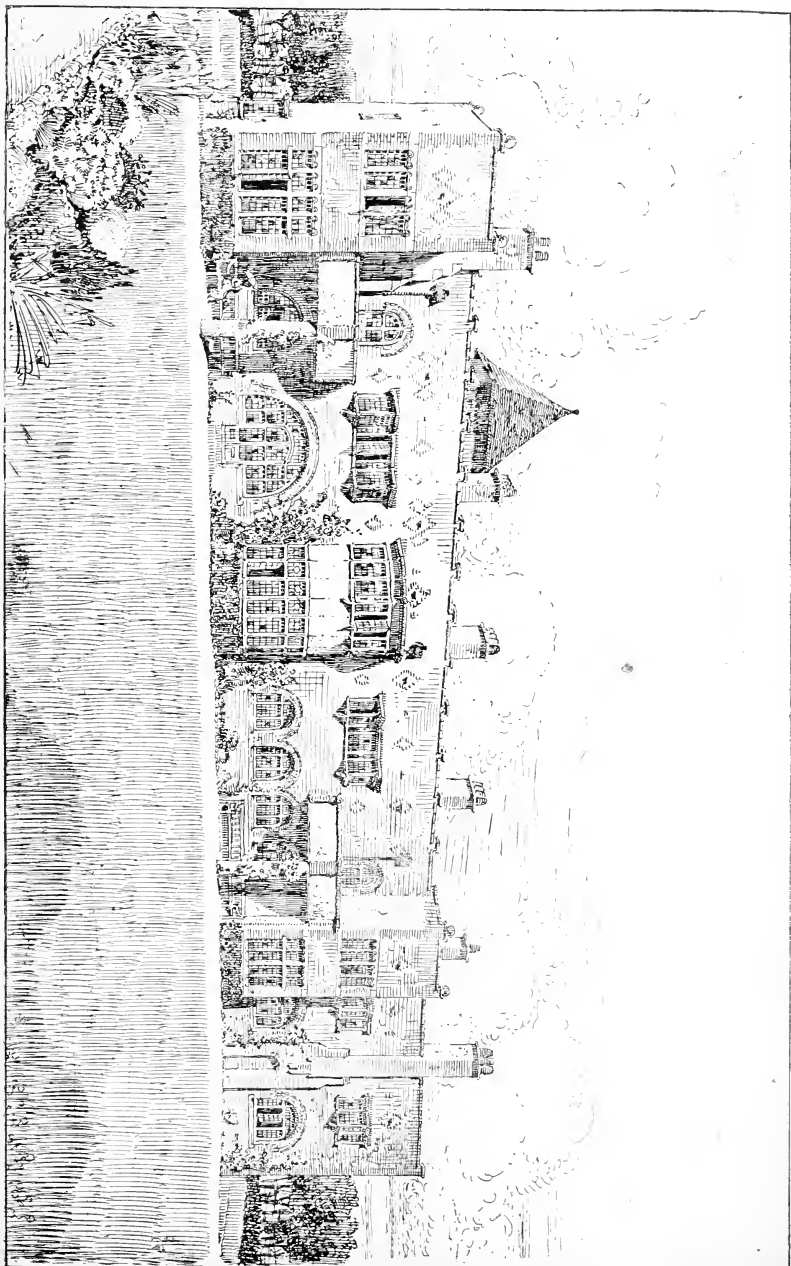
At a meeting of Liberton School Board held on Monday, plans for the erection of a new school at Gilmerston, to accommodate 400 pupils as prepared by Mr. James Inch Morrison, F.R.I.B.A., York-place, Edinburgh, were adopted. The plans show, beside classrooms, a school on Sunday main hall, dormitories, a large central hall, a cokeroy room, and a manual instruction room. The building will be erected on the site of the Anderson Female School.

Ernest Thomas Redcliffe, aged about forty-six years, a plumber, who for the last ten years had resided alone in rooms at Newport-buildings, 8-10, on Sunday main hall, died in Charing Cross Hospital on Monday. It has since been discovered that he had saved about £200, and the police at Vine-street are anxious to trace relatives of the dead man, who is believed to have a sister living at Clapham.

The well-known sculptor M. François-Raoul Larch died in Paris on Wednesday, June 19, at a motor accident. M. Larche was born at Saint-André-de-Cubzac, in the Gironde, in 1860. In this year he exhibited a marble "La Filiation." His group "Les Violettes" is in the Luxembourg, and amongst the best known of his works are "La Truqueuse" in the Municipal Museum, Paris, "Le Kiosque" in the Senate, and "Jeanne d'Arc" in the Madeleine.

A meeting of the Engineering Standards Committee will be held on Wednesday, June 19, at the Surveyors' Institution, to consider, at the request of the Royal Board, the question of the standardisation of real material, with a view to ascertaining in what directions standardisation may most usefully proceed. The conference will be held under the chairmanship of Sir John Wolfe Barry, chairman of the Engineering Standards Committee.

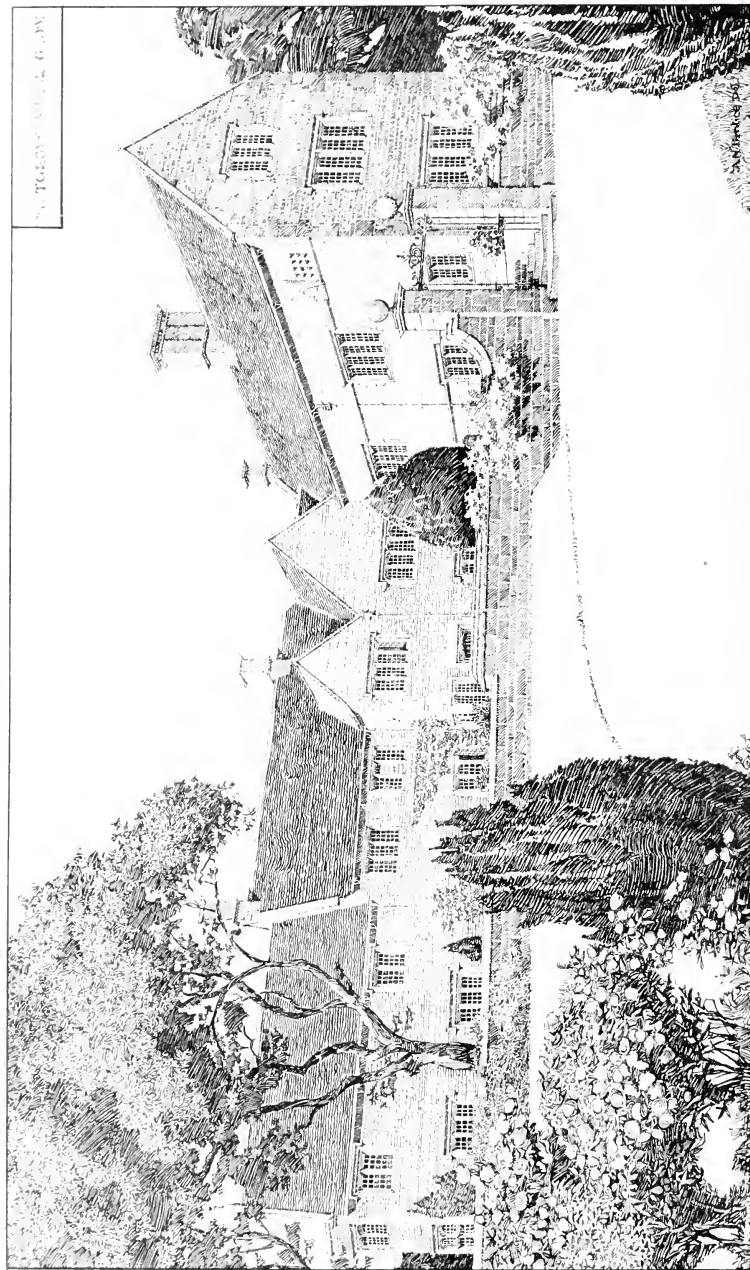




ST. RAFAEL'S, RECTORY.—MR. J. COATES CARTER, F.R.I.B.A., ARCHT.

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A. N. PRENTICE, F. R. I. B. A., ARCHITECT.

W. H. & A. N. Prentice & Co., Architects, 11, St. James's Place, London, W.

AN ARCHITECTURAL ILLUSTRATION OF A LARGE, MULTI-STORY BUILDING COMPLEX, LIKELY A GOVERNMENT OR INSTITUTIONAL STRUCTURE. THE MAIN BUILDING FEATURES A PROMINENT CENTRAL GABLED SECTION WITH A LARGE ARCHED WINDOW AND MULTIPLE CHIMNEYS. TO THE RIGHT, A LONG, LOW WING EXTENDS, AND TO THE LEFT, ANOTHER SECTION IS VISIBLE. THE BUILDING IS SURROUNDED BY TREES AND A PAVED AREA. A SMALL INSET DIAGRAM IN THE TOP RIGHT CORNER SHOWS A FLOOR PLAN OR SITE LAYOUT WITH LABELS.

Polydiphenylmethane 609



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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ARCHITECTS AND THEIR RESPONSIBILITIES.

The old case of "Minter v. Waldstein" seems to have become an obsession with the R.I.B.A. The flogging of a dead horse appears to have unexpected attractions for many minds that might otherwise be engaged upon discussing something more worthy. As we reported last week, Mr. William Woodward read a tremendous paper at an extra meeting of the Institute, and there was a discussion. But we cannot help thinking that the President, in summing up, hit the bull's-eye when he said, "For himself, he should like, if possible, to forget this unfortunate case." He had listened to the paper and the debate, and we do not wonder that, in very weariness, he expressed his longing to forget the whole affair. He also remarked, with wisdom, that "a little learning was a dangerous thing," and left it at that. But we need not go beyond the paper itself to find an answer to the whole of this long debating, for the author himself concluded with these weighty words: "Our present Conditions of Contract do not provide in any way clearly for the settlement of these troubles, and it becomes day by day more urgent that those Conditions of Contract should be revised, for the protection alike of client, architect, and builder." Well, we have said the same thing recently in various articles, and have given legal reasons for so saying; while at a former meeting, at which this awful arbitration was gone into elaborately, the solicitor to the Institute rubbed in his point that badly-drawn and obsolete forms of contract were the root of the evil.

We do not think much is gained by talking of the "new," or even the "newer," responsibilities of architects. There is really nothing new in the matter at all. These responsibilities are as old as the law of principal and agent. The only thing new about the business is the awakening of some architects to the existence of that law. An architect who has always regarded himself as the principal in everything, and everywhere, naturally suffers a sort of shock when, in the cold language of the law, he is held to be only an agent. He at once cries out that this is not according to his view of the contract under which he has been working. But then a contract is not a code of law or a public statute. It is merely a form of words that has to be construed by judges, who abide by long-established legal principles, and apply to their construction a long line of decided cases. The worst of these papers and discussions is that they

are never-ending and lead nowhere. It may be an exercise of professional intelligence to discourse at large upon the evidence given in a particular arbitration case, where each successive speaker can air his views upon the "new responsibilities," and can also suggest how much better he would himself have carried out the job. But there is no guiding or general rule or result to be got from going over the passing facts of a dead dispute in which only the parties concerned were really and actually affected, and from which nothing of practical value can be deduced for future application. It seems strange that a whole evening should be again spent in plunging such old sands.

The attitude of the artistic mind to the courts of law is well shown by one remark in this lengthy paper, where we are told that "judges were apt to strictly construe the letter of the clauses in the specifications, without inquiring into, or professing to ascertain, what were the requirements of the case." Well, what are the judges for but to decide between the parties upon the disputed meaning of a document which has been written out with letters to govern their rights and responsibilities? If the architects' views of the "requirements of the case" are to settle everything, why trouble about contracts at all? A good autocrat is the best of all rulers, and an omnipotent architect who is his own arbitrator would doubtless do very well, pre-supposing that everyone under him was willing to obey. It is assuredly the height of wisdom to keep out of the courts and away from the law and the lawyers, if it can be done. But it is not much use complaining of our judges for applying the law in a legal manner. Possibly the true inwardness of this latest and lengthy paper upon our stock case may be found in an illuminating observation thrown out by its author near the beginning, where we read that in these degenerate days "the client obtrudes his views as to what should and should not be done by the architect," which was not so in the good old days of long ago. Well, to the commercial mind of our generation, one answer would be that, after all, the client pays. Another view may be that when a man builds himself a house to live in, he should have some little say in the sort of home he wants. Doubtless this is mere Philistinism; but it is as well sometimes to remember that even clients, as building owners, are human, with all the defects of their nature, and often grievously lacking in sympathy with the artistic temperament.

We cannot help saying that all this

outcry about the new and newer responsibilities is not very dignified, or worthy of a profession that must labour to live. Nor can we see much use in lamenting the "rush" or "hustle" of work nowadays, or explaining over "the hurry of modern building." Other professions do not claim the leisure of mediæval times in which to carry on the duties of their state. We have long passed the era when a century or so did not much matter in architectural affairs. Nor is it even now quite certain that the long delays in building, say, cathedrals, was at all an advantage. It is said to say so, but we fear that our architects must learn to live according to the temper of their time, and not seek to pass as belonging to one of the "great periods" that has long ago passed away, with many other unrecusable things. But to come back to the law and the contract. It has often been said from the Bench that common law is common sense, and a very sound saying that is. The common-sense way of drawing up a contract is to provide, as shortly and simply as possible, for the work that is to be done, and to throw overboard all those tricky clauses which have gradually got elaborated into formal provisions that nobody reads or understands. As we have said before, traders who know what they want to sell, or to buy, have no difficulty over their contracts. Nor do they have any tedious troubles in regard to their arbitrations. If the Committee of the Institute, which is still said to be sitting upon its official Conditions of Contract, will only adjourn indefinitely, and send their solicitor-instructions to draw up what he thinks necessary, some progress would be made towards a common-sense solution of what now seems to puzzle a whole profession.

BRICK ORNAMENT.—VIII.

FRIEZES.

Next to the cornice, and in combination with it, the frieze forms one of the most important of architectural features, requiring careful study to produce effective results in due proportion to the general mass and height—a matter often somewhat difficult, with the many limitations imposed by the practical necessities and requirements attached to much modern work, usually further influenced by cost, to some extent. With the possibility of a good, bold cornice, even if only on plain lines, as shown in the article devoted to that section, a little carefully-studied work introduced in the frieze makes a great deal of difference to the appearance of any structure, both from a general architectural point of view and a decorative one. Correct architecture is

number of shades of white, and a few of the most common, and in fact, the most extensive, and available, access to the

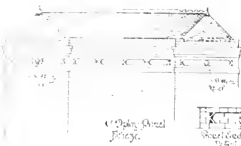


FIG. 1.

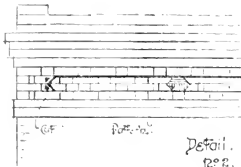


FIG. 2.

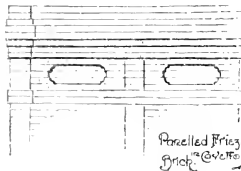


FIG. 3.

further ornamentation, or as a connecting-link with the former. The systems of raised and sunk work therefore form the most effective methods of decoration to most architectural features, the frieze included. That

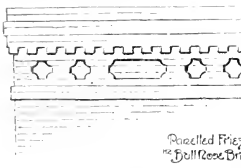


FIG. 4.

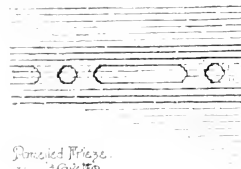


FIG. 5.

the result, and which proves the necessity, for plain architectural lines, in a position, requiring narrow and simple treatment, are the various systems of ornamentation. With many classes of structure such have to be largely plain, owing to the

"limitations" imposed, merely the slightest decoration or relief is admissible. In these circumstances one of the most effective positions to satisfactorily introduce such is undoubtedly the frieze. Quite a large degree of real architectural effect and finish can be given to a building by many of the simplest methods of panelling on broad lines. Any decorative work, too, introduced for these

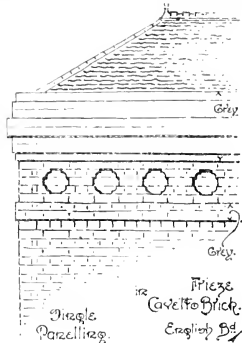


FIG. 6.

purposes should be preferably put into the frieze. In this position, even in conjunction with a very plain cornice, it proves far more effective than spending the whole of the available "limitation" on the latter feature in the production of something highly decorative, elaborate, or ornate. In the first illustration is shown a simple design in splay panel-work on broad lines, the cost of which would prove very little more than that of plain brickwork. Something of this type might be readily adapted to most buildings which are either wholly devoid of architectural treatment or merely have something startling

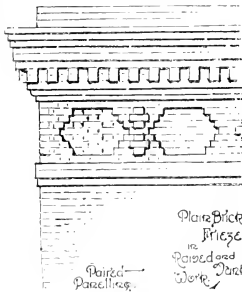


FIG. 7.

inserted, such as arches, courses, or pilasters, etc., in blue bricks; gable ends filled in as a beautiful set of blank brickwork windows, by way of decoration. In the latter position carefully used raised and sunk work, not necessarily panelling, would prove of no more expense than "brick windows," more often not so much. These principles apply to several large classes of buildings erected annually, to such an extent that, in all probability it might be termed enormous, comprising factories, warehouses, workshops, stores, depots, and other general commercial premises of many descriptions, apart from a good deal of residential. "Brickwork windows" especially have always proved

something of a mystery. Possibly their originators possess X-ray eyes and imagine everyone else has them, too. Such features, essentially false, are amongst some of the

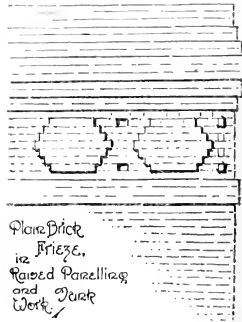


FIG. 8.

worst "fashions" of bad art in architecture. In place of "decoration" by these types it would be far better to substitute some of the simplest methods of brick ornamentation, more especially when we consider that a great

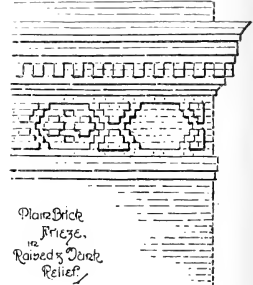


FIG. 9.

deal of it can be carried out in the natural hand, without any panelling. Some of the many systems of panelling can be quite cheaply introduced once the pattern is set

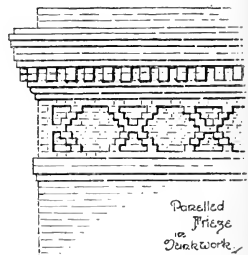


FIG. 10.

with the end bricks in elongated panels, such as shown by Figs. 1, 2, and 3. Fairly long single panels, in bays formed by plain pilasters, afford a fair amount of enrichment

to an otherwise plain wall face. Small double panels, alternated with longer single ones, as illustrated by No. 4, or alternated, as shown in Fig. 5, tend to break up the masonry

Here the narrow type of small moulded panel, either single, double, or elongated, proves useless, unless massed or clustered, etc. The latter method, in some instances, can be made very effective; but, as a rule, a bolder system of panelling is essential for bolder and larger structures. The least expensive methods which can be adapted to this branch are those of stepped panelling, mainly in the regular bond, merely requiring the introduction of an occasional header in the stretching course if in English bond, or in place of a stretcher when in Flemish. These

usually lost in either system by over-crowding pattern work. A far heavier type of panelling is shown by Fig. 12, finished at each end with the elongated spandrel, small

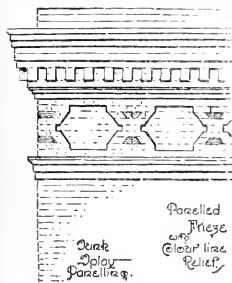


FIG. 11.

otherwise formed by confining work to one particular size pattern. On a fairly short length repetition, as shown by the single panelling in No. 6, looks well enough. Such

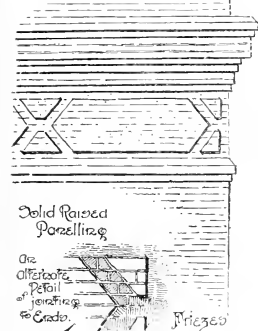


FIG. 12.

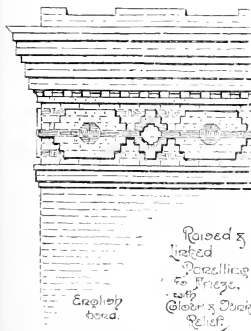


FIG. 13.

features more often prove of considerable length when variation gives a better result. For bolder work on larger and lofty buildings a different type of panelling is necessary.

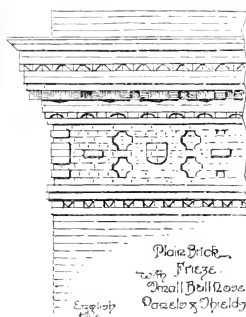


FIG. 14.

varied bricks, however, break joint readily enough with the course above and below, as illustrated by the sunk stepped panels in Fig. 7. A more massive effect is obtained in the raised stepped panel, as shown in the succeeding illustration, No. 8. The large sunk or raised stepped panel can be still further decorated with the various forms of small sunk or raised patterns previously illustrated, and as shown by Fig. 9. Such smaller patterns, though, have a better appearance in a long frieze when executed in low tones

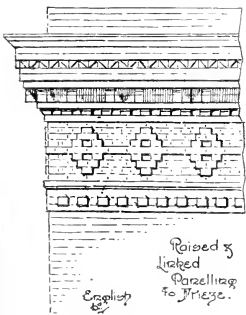


FIG. 15.

of colour relief alone, thus conveying a broader feeling to the whole structure by means of the panelling, this effect being somewhat broken if the latter is too much cut up. Fig. 16 illustrates the effect of the sunk stepped panels and spandrels, as contrasted with the raised spandrels in the previous illustration.

Clean line panels can be more readily formed by means of the eplay than with ordinary bricks, after the system illustrated in Fig. 11. The introduction of very slight lining reliefs are an added improvement, and these are all the better for being kept restrained, as shown by the latter figure. A large amount of real effect and value is

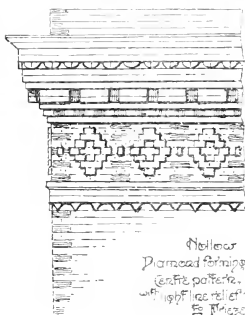


FIG. 16.

raised spandrel pieces being introduced between each pair of panels and at the corners of the building. Such panelling can, of course, be as readily formed in sunk work, also in

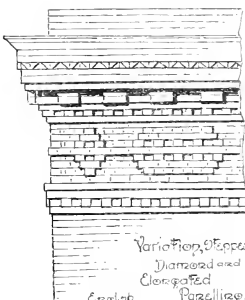


FIG. 17.

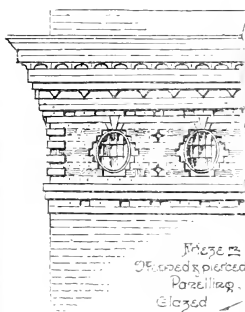
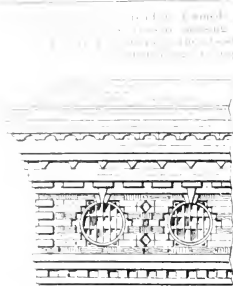


FIG. 18.

longer lengths, when, with the spandrel pieces, the general effect obtained on a building is much the same as that illustrated by Fig. 1, at the commencement. The small detail on Fig. 12 shows how such a system



Frieze in Draped & Pierced Pottery. Coloured.
FIG. 19.

Many varieties of colour patterns, combined with lining, can, of course, be employed in these positions beside those indicated. With more elaborate types

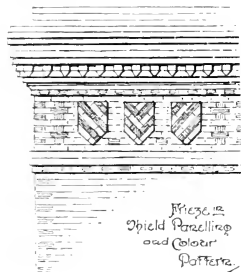


FIG. 20.

keeping the frieze is far better kept somewhat restrained by a lighter form of ornamental pattern work, more of the simpler indicated by Fig. 14. An example

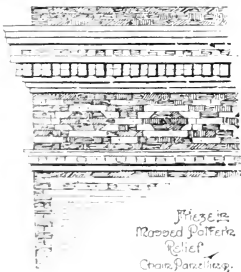


FIG. 21.

is shown somewhat after the style shown by Nos. 17. Besides the lines 18 and 19 illustrate the use of a pattern of circles and squares, the circles being further decorated with a cross, and the squares with a cross, and the low lines of the circles being a little sunk relief or intervals. As regards the windows, they would provide an extremely picturesque effect, as is suggested by the detail of these windows in a plan, is another frieze work. Groups of panels, well set, in a carefully studied design, are capable of proving the medium of some really beautiful work, especially when further studied in conjunction with the pattern, and lining with regard to the details, somewhat after the nature of Fig. 20. Many other patterns adapt themselves to the shields and also the frieze, in combination with them. Figs. 21

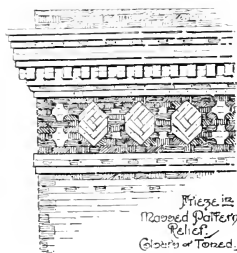


FIG. 22.

and 22 illustrate in a couple of rough sketches two designs which show the use of massed background work, as applied to the frieze. This type of brick ornament is productive of a somewhat heavy class of relief, nevertheless forming extremely strong and bold types in pattern work. Elements, although not suited to every class of structure, would be a consideration, and prove specially applicable to certain kinds of building. The principle of applying many such designs to the frieze and adapting them to the general requirements of the latter, both in massed background relief, as shown, or in the department of massed pattern relief, will no doubt be readily enough followed and grasped. Other designs specially illustrating this branch of application are, therefore, hardly a necessity. Some of the simpler combinations of massed lining as well, are extremely useful forms for a modified type of frieze, in conjunction with simple plain cornices composed of a few oversailing courses.

W. G. KIRBY, Architect.

REINFORCED CONCRETE BUILDINGS.

By WM. G. SHIPWRIGHT, Licentiate R.I.B.A., M.C.I., and Chartered Surveyor (Building by Exam).

TWO FACTORIES IN LOWER CLAPTON ROAD AND RIDLEY ROAD, HACKNEY.

Messrs. John Hamilton and Sons, Architects.

The second example, referred to in the previous article is Messrs. Tiverner's factory, erected in Ridley street, Hackney, and the ground floor plan illustrated in Fig. 15, shows the columns and beams of the first floor. It will be seen that a cross-wall divides the building into the two sections illustrated in Fig. 14, which are roughly 4,000 and 3,000 feet square, respectively. In the larger of these a central row of four columns (A) supports the 7 in. 6 beams Nos. 2 and 3, and each alternate beam No. 1, each column thereby, sufficing with the support afforded by the piers in the external walls to carry a floor area of 1,000 superficial feet. These columns are of the type shown in Figs. 16 to

21, and differ from the illustrations of the building given in the previous issue, by the position of four rods in the interior of the column of the three lower floors. These are 8 in. square on the third floor, 13 in. square on the second floor, 18 in. square on the first, 24 in. on the ground floor (Fig. 18), and 24 in. square in the basement (Fig. 19). An enlarged detail of the connection at the detail of point D, clearly illustrating the junction of the different lengths of rod by means of the thimble and the manner in which the beam rods are lapped and bent at the point of junction with the columns. Detail C C (Fig. 19) also shows a good form of linking the rods in large columns. The foundation is 8 ft. super, constructed in a similar manner to the example (already illustrated in the previous issue in Fig. 13), heavier reinforcements, however, being provided in a close lattice of small rods and vertical stirrups placed in similar positions to those in the detail in question.

The floors in this case are 5 in. in thickness, the loading being taken at 200 lb. per foot super, inclusive of the principal beams employed are illustrated in Figs. 22 to 28, these details being applied as in the previous case, with only slight variations, to all the floors.

Beams No. 1 (Fig. 22) are provided in the positions indicated on the plan. They each support a floor area of nearly 400 superficial feet, and have a total depth, inclusive of the base, of 22 in., the width being 7 in. Tensile reinforcement of twin rods only is employed, illustrated in the enlarged section.

The beams (No. 2) which support each alternate pair of beams, No. 1, as central concentrated loads and a proportion of the floor as a distributed load, are illustrated in Fig. 23, the effective spans varying from 18 ft. 7 in. to 19 ft. These beams are 24 in. inclusive depth and 8 in. wide. The tensile reinforcement being similar to that of No. 1 beam, but including additional stirrups to provide the required shear resistance.

The complete bond secured in the wall lintel by linking the respective sets of rods as illustrated in section in Figs. 22, 23, and 24.

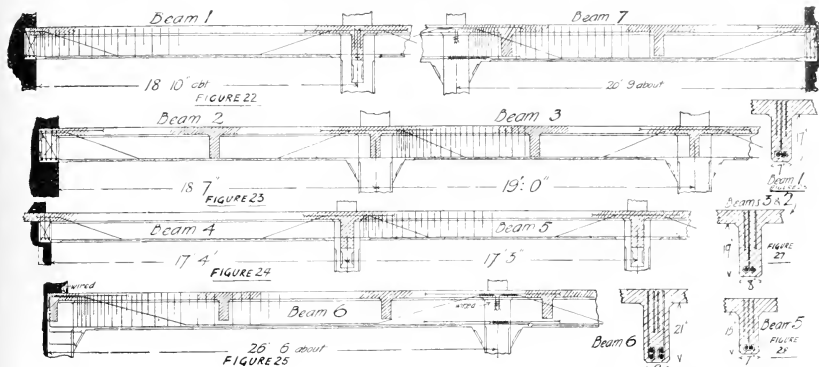
The series of beams and columns is so arranged in the smaller section that only two intermediate supports are required, each of which assist in carrying over 1,500 superficial feet of floor area on each floor. Beams Nos. 4, 5, 6, and 7, transmitting the loads from various parts of the floor to the columns and walls. Beams Nos. 6 and 7 take direct bearing upon the columns, and the corner of these shown in Fig. 25, having effective span 26 ft. 6 in., are 26 in. deep, including the floor, and 9 in. wide, with dual sets of rods. The upper part of each pair is cranked at the points of contra flexure, and, passing into the upper part of the beam just anterior to the points of support, are bent downwards into the body of the columns and secured together. These beams, albeit more heavily reinforced than the other beams in the building, are remarkable achievements of design, having regard to the span and loading.

Beams No. 7, having an effective span of 21 ft., assist in supporting four of the cross-beams, Nos. 4 and 5, as concentrated loads. In addition to the distributed load from portion of the floor coming directly upon them. Twenty-four inches deep and 8 in. wide, they are provided with a single pair of rods as tensile reinforcement. The arrangement of the rods provide secure bonding into the wall lintel, as shown in the detailed figure.

Fig. 24 illustrates the cross-beams Nos. 4 and 5, which are 20 in. deep and 7 in. wide. Fig. 28, the span being 17 ft. 3 in. and 4 in. respectively.

The two columns in this section of similar detail to that of column "A" (Figs. 16 to 21) and of practically the same dimensions.

Graded concrete has been employed for both buildings, and it is proposed to apply a test similar to that seen in the previous issue to the building which is the subject of this article. This factory affords another excellent illustration on an entirely differently shaped site to that previously considered, of the possibility of designing

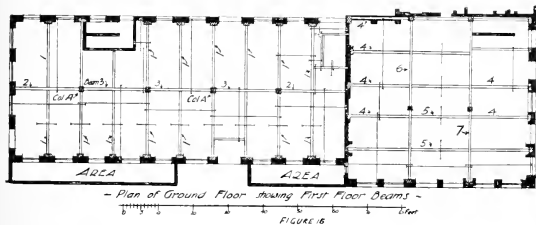


reinforced work with an economy of material and an impediment to useful floor space which is certainly not greater than that entailed by ordinary steel-and-concrete con-

with Bradford's Granolithic, giving a remarkably hard, clean surface.

The elevations are built in stock brick, with cream artificial stone dressings, manu-

consideration before their application to all cases may be deemed final. Even purely aqueous material does not render structures submerged in it buoyant. A man, for instance, will sink in quicksand before he will float. A steel ship will sink buoyant only if reduced by contact with solid material. It is also well known that tunnels under the North and East Rivers were not buoyant, whereas the material under the North River was at times so aqueous that spring construction was possible. The water under the North and in many cases the doors were not opened even for the advancement of the shield. In the semi aqueous material of the East River the tunnel, though theoretically buoyant, always sank when the material around it was removed. In the case of the North River tunnels showed the same condition. On the other hand, floors have been known to burst up under pressures, while other floors, admittedly not strong enough to resist full pressure over the whole area, have done so



struction, the depth and space occupied by the beams being in most cases rather less than would be required by encased steel girders in similar positions. Systematically schemed and designed, reinforced concrete is

factured by Messrs. Bradford and Co., who are also the contractors for the reinforced work, the builder being Mr. W. Nash, of Dentford.

NOTES AND EXPERIMENTS ON EARTH PRESSURES.*

BY JAMES C. MEEM.

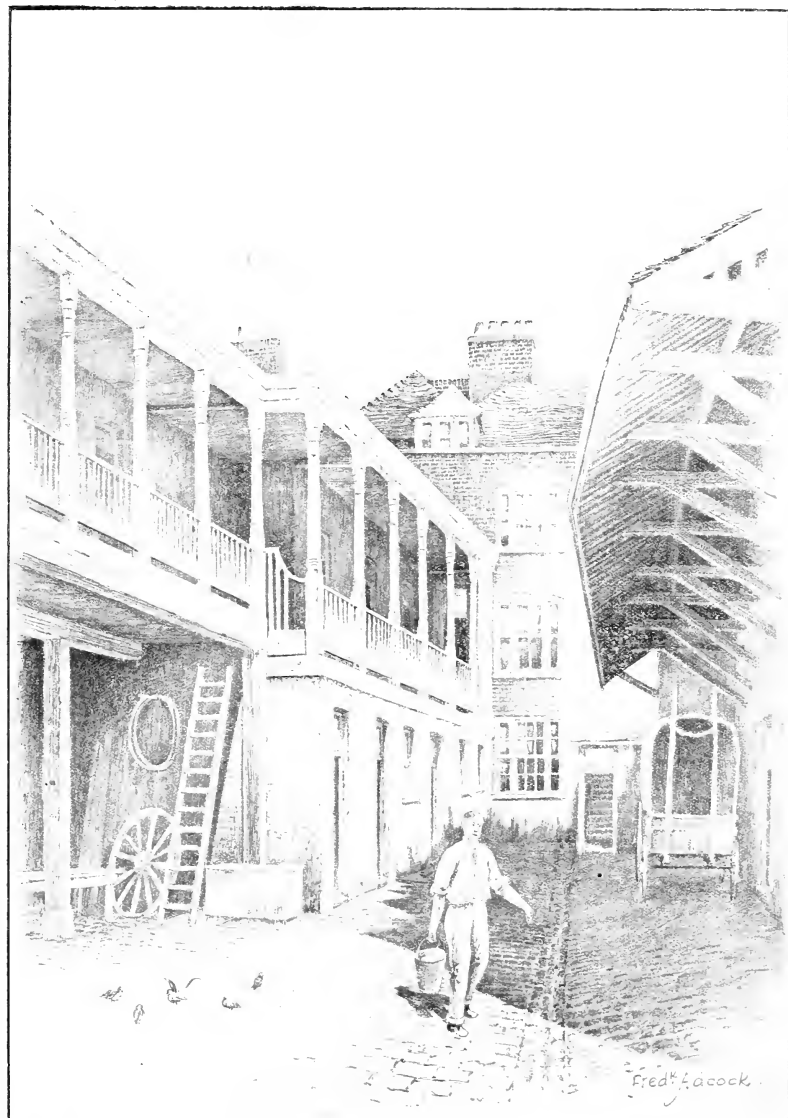
(Continued from page 808.)

Coming next to the detailed consideration of Class B, that of semi-aqueous materials, which constitute by far the larger class, the writer is of the opinion that they should be treated in the same way as firm materials, except that a larger proportion of aqueous material should be given due weight. Thus: If such a material when dry is found to contain 50 per cent. of sand and 50 per cent. of clay or finely divided material, and 20 per cent. of voids, then it should be treated, when saturated, as a material containing 50 per cent. of sand and 50 per cent. was aqueous; that is, an excess percentage allowance for the aqueous should be made before proceeding, as heretofore noted. The determination of these factors need not in any case be left to guess-work or chance, but can be definitely established, and also the angle of repose when the material is dry and when it is wet. With these factors and others determined by experiments on a large and comprehensive scale the engineer can proceed with safety along the general lines proposed or as modified by the results of the experiments. As to the question of buoyancy and sinking of materials, it is a question of level, and

* A paper read before the Engineers' Club of Philadelphia.

shown by these two examples to certainly offer great facilities for this type of construction.

The floors have been finished throughout



GALLERIED YARD ADJOINING THE HARPER ARMS THEOBALD'S ROAD W.C.

THE R.T.B.A. ANNUAL ELECTIONS.

Representing of the Royal Institute of Architects held on Monday evening at 9, 10, and 11, at the President, Mr. Leonard Rickards, the results of the elections of the Council and Standing Committees, as proposed by the scrutineers, was announced as follows:—

MEMBERS OF COUNCIL.

President, Mr. Reginald Blomfield, A.R.A., M.A., F.S.A., Vice-President.

Vice-Presidents: four seats, six nominations: Alfred William Stephens Cross, Edward Cave Dawber, George Hubbard, F.S.A., Ernest Newton, A.R.A.

Honorary Secretary, Mr. Henry Thomas Hare. Members of Council: eighteen seats, thirty-six candidates: Arthur William Brewin, Max Clarke, Thomas Edwin Cooper, William Dunn, Frederic Richard Farrow, William Flockhart, William Adam Forsyth, James Sivewright Gibson (past Vice-President), Henry Vaughan Lancaster, Charles Stanley Peach, Sydney Perks, F.S.A., Samuel Perkins, Peach, Charles Henry Pomeroy, Edwin Arnold Rickards, Walter John Tappin, William Henry White, Edmund Walter Wimpey, William Woodward.

Associate Members of Council (six seats, fourteen nominations): Kensington Gammell, Sydney Kilfin Green-lade, Edwin Gunn, Alan Edward Munby, Septimus Warwick, Arthur Needham Wilson.

Past Presidents (two seats): Sir Ernest George, A.R.A., Leonard Stokes.

Hon. Auditors: John Hudson, William Henry Burt.

Representatives of Allied Societies nine seats, nine nominations: John Brooke Manchester Society of Architects, William Milburn Northern Architectural Association, Alexander Nisbet Paterson, M.A., Glasgow Institute of Architects, Arthur Clyde Aberden Society of Architects, Charles Edward Bateman Birmingham Architectural Association, Ernest Richard Eckert Sutton, Newlyn Art Professor Society, Alexander Lorne Campbell Edinburgh Architectural Association, John Alfred Gutch, F.S.A. (Northampton Association of Architects), Representative of the London Architectural Association: Gerald Callcott Horsley.

MEMBERS OF THE STANDING COMMITTEES.

Art Committee.—Fellows ten seats, sixteen nominations: Edward Guy Dawber, William Flockhart, Henry Thomas Hare, Gerald Callcott Horsley, Thomas Geoffrey Lucas, Ernest Newton, A.R.A., Edwin Alfred Rickards, John William Simpson, Henry Heerde Catham, Walter John Tappin, Arthur Adam Professor, seven nominations: Ormond Maxwell Atwater, Matthew James Dawson, Sydney Kilfin Green-lade, John James Jones, Septimus Warwick, Arthur Needham Wilson.

Literature Committee.—Fellows ten seats, fifteen nominations: John Alfred Gutch, F.S.A., William Curtis Green, David Barclay Niven, Herbert Hildon, George Alexander, Professor Frederick Moore Simpson, Richard Pendergast, F.S.A., Charles Sydney Spooner, Charles Harrison Townsend, Edward Pridmore Warren, F.S.A., Paul Waterhouse, M.A., Associates (six seats, nine nominations): Walter Millard, Herbert Passmore, Cyril Womner Smith, Arthur James Stratton, William Henry Ward, Hilda Wood.

Practice Committee.—Fellows ten seats, twenty-one nominations: Walter Cave, Max Clarke, Alfred William Stephens Cross, George Hubbard, F.S.A., Charles Stanley Peach, Sydney Perks, F.S.A., Herbert Dunstan Scars-Wood, Alfred Saxson Snell, William Henry White, William Woodward, Associates (six seats, nine nominations): Henry William Gubb, Kensington Gammell, Edward Green, John Nison, Horfield, Charles Edward Hutchinson, Herbert Shepherd.

Science Committee.—Fellows ten seats, ten nominations: Harry Percy Adams, Ernest Robert Barrow, William Edward Vernon Crompton, Bernard John Dikee, John Dunn, Frederic Richard Farrow, Ernest Kilfin Green, Gilbert George Hawthorne, Havenscourt Eley Smith, Associates (six seats, ten nominations): Robert de Angel, George Leonard Elkington, Alan Edward Munby, M.A., Digby Lewis Sdomon, F.S.A., Ernest William Malpas Womwott.

A star * prefixed to a name denotes re-

section, a dagger † signifies change of office; in the list of members of council a section § shows a nomination on the retiring Council; a house list; a paragraph ¶ a subsequent nomination.

The following is the communication which was sent to voters in May by the Institute Members' Club:

R.T.B.A. ELECTION, 1912.

Institute Members' Club,
CANTON HOUSE, WESTMINSTER, S.W.
Room 219.

MAY, 1912.

"REGISTRATION OF ARCHITECTS."

DEAR SIR, Five years ago Registration as a practical policy was decided upon by the Institute, but it is only within the last two years that proposals which proved unsuccessful have emanated from the Council, showing in the opinion of the Club that drastic changes in the personnel of the Council are necessary to bring Registration to a successful issue.

The Institute took pride in the accomplishment of that policy, and unless a Registration Bill is introduced, without delay, on wide and tolerant terms, acceptable to its members, with adequate recognition of all important vested interests, both public, professional, and educational, the Institute will inevitably steadily itself until it is a non-qualified person and trading firm: those rights which its members have won by proper qualification.

Burned the whole of the last year this matter has been in the hands of the Council, Committees have indeed been appointed; but it is now recognized that the enthusiasm and firm conviction on the part of a large majority of the members of the Council, a reform of this nature cannot be effected. We inevitably, therefore, conclude that, unless members return candidates at the forthcoming election who possess qualifications necessary not only for the prestige and satisfactory government of the Institute, but also for the immediate preparation of a Parliamentary Registration Bill, there will be no end to this disastrous delay.

In these circumstances we urge you to vote only for those candidates whom we believe will pursue a strong and vigorous policy such as we consider to be absolutely necessary in the interests of the Institute at the present juncture, and for your information we append a list of such candidates.

Signed on behalf of the Institute Members' Club.

ALBERT W. MOORE, Fellow,
HERBERT SHEPHERD, Associate,
Hon. Secs.

PRESIDENT.

* BROOKES, RICHARD.

VICE-PRESIDENTS.

CROSS, A. W. S. RICHARD, G.

COUNCIL.

FELLOWS.

BREWELL, A. W. PEACH, C. S.
CLARKE, MAX. PERKS, S.
COOPER, T. H. PICK, S.
DUNN, W. QUINNELL, C. H. B.
FAWCON, F. R. RICKARDS, E. A.
FLOCKHART, W. TAPPIN, W. J.
FORSYTH, W. R. WHITE, W. H.
GIBSON, J. H. WIMPEY, E. W.
LANCASTER, H. V. WOODWARD, W.

ASSOCIATES.

GAMMELL, K. SOLOMON, D. L.
GIBSON, E. WARWICK, S.
GREEN, E. WILSON, A. N.

N.B.—It will be noted that with one exception Mr. Solomon, who was replaced by Mr. Green-lade, all the members recommended in this list were elected.

R.T.B.A. BOARD OF ARCHITECTURAL EDUCATION.

The following is a further list of students whose designs have been approved:—

Subject I. (a): A Terrace of Five Houses.—Mr. E. H. Gibson.

Subject II. (b): A Cluster with External Entrance Gateway or Tower to a Collegiate Building.—Mr. E. H. Gibson and Mr. Wm. Voelkel.

THE CITY AND GUILDS OF LONDON INSTITUTE.

The report of the council for the year 1911 is the thirty-second annual report since the incorporation of the Institute. In their last annual report the council submitted the text of the supplemental charter granted to the Institute to enable it to co-operate more effectively with other bodies in the co-ordination of technological work, particularly in the Metropolis, and more immediately in regard to the association of the Institute's Central Technical College as the Engineering Section of the Imperial College of Science and Technology. The supplemental charter provided for the constitution of a deputation, representing the governing body of the

Imperial College, the City and Guilds of London Institute, and the Goldsmiths' Company. This deputation is charged with the immediate control of the Central Technical College, which, under the new name of the City and Guilds (Engineering) College, will include the whole of the Engineering Department of the Imperial College. Additional buildings for Engineering are in course of erection, towards the cost of which the Goldsmiths' Company made a grant of £50,000. The deputation expect shortly to be in a position to consider the future development of the work of the College, in view of the extension of the buildings now in course of erection. They urge upon the governing body of the Imperial College the desirability of the completion of the buildings with as little delay as possible. At the close of the session in July, 1911, the diploma of Associate of the City and Guilds Institute was awarded to 96 matriculated third year students, against 80 in the previous year. Last year 28 students of the College obtained the degree of B.Sc. (Engineering) in the University of London: 14 in honours, and 14 pass. The number of students of the College of the University who have taken their degree from the Central Technical College is now 185, that being about half the total number of internal degrees conferred by the University in Engineering since 1903, the first year of the examination. The following are the figures:—

Internal Students of the University of London, 1903 to 1911.	Verified from Honors Pass.	Total	
The Central Technical College	147	38	185
All other Colleges of the University	130	60	190

Total 277 98 375

There were in all 219 registered internal students of the University of London attending the College.

It is regretted that the number of day students attending at the Technical College at Finsbury during the year 1910-11 amounted to only 147. With a view of possibly increasing the number of students, also of making the best use of the advantages to be obtained at the College, the Principal has recently suggested that it would be advisable to establish a third year course in Electrical Engineering. Having regard to the large amount at present expended by the Institute on each student, it is considered advisable that the suggestion of the Principal should be tried experimentally on the understanding that the Institute be put to no further expense. A sub-committee was appointed for the consideration of this suggestion, and it is now being ascertained whether some satisfactory arrangement cannot be arrived at between the Finsbury College and the City and Guilds Engineering College (S. Kensington), whereby an increase in the number of students to the Finsbury College can be attained. At the close of the session certificates were awarded to 57 students, against 57 in the preceding year: 19 in Mechanical Engineering, 21 in Electrical Engineering, and 7 in Chemistry. There were 60 candidates at the entrance examination to the current session; of these, 60 passed the examination, and 57 joined the College. 7 candidates were admitted after the entrance examination, making the total number of students attending the Engineering Department of the College was attended by 277 students, against 233 in the preceding session.

Owing to the death of Mr. Brophy, the headmaster, the Institute have had under their mature consideration as to the advisability of continuing the Art Department at Finsbury, and it has been decided that it would be advisable to continue the department for the present, and that expert advice be obtained as to its future management.

South London School.—The report for last session, given in Appendix C, shows a satisfactory increase in the entry of students during that period, distributed as follows, and compared with the two previous sessions:—

	1909-10.	1910-11.	1910-11.
Modelling	20	37	40
Life drawing—Evening	31	30	32
Life drawing—Special Day	14	20	22
House-decoration	20	20	22

Total 106 103 120

* Have written to say that their names were thus used without consent.

It has been pointed out in previous reports that the attendance of students at this school, especially in the Modelling and House Decoration sections, is affected from month to month by the location of their daily work. From the nature of their employment the students are liable to be moved from one place to another, and in some cases for considerable periods away from London. In December last the Royal Academy Gold Medal Travelling Studentship of £200, awarded every other year in the subject of Sculpture, was again carried off by an old student of the school, John Angel. Out of fifteen competitors, eight have been won by students of the South London School, and two by students of the Art Department at Finsbury, so that ten successful competitors out of fifteen have been students of the Institute. The report in the appendix deals with various matters connected with the school, and contains the reports of the teachers. Since the issue of that report the annual competitions have been held and have produced a more than usually high standard of models and designs. These in the Modelling section were judged by Sir William Goscombe John, and those in the Drawing and Painting section by Mr. H. A. Olivier.

Department of Technology.—During the past session 52,680 students were in attendance at 4,495 classes in Technology registered by the Institute. The total number of candidates presented for examination last year, including candidates from India and the Dominions overseas, was 27,295. This figure shows an increase on that of any previous year. The issue by the Board of Education in June last of Circular No. 776, in which the Board announced their intention of ceasing to hold examinations in Stage I of all science subjects, and of giving up practical examinations, and of limiting their science examinations to certain subjects set forth in the appendix to the Circular, will necessitate modification in some of the Institute's regulations, particularly in the requirements for full technological certificates.

The Institute has continued its inspection of technological classes in textile subjects, iron carriage building, boot and shoe manufacture, and plumber's work. The council attach great importance to the advantage of associating, as far as possible, examination and inspection. The council express thanks to the various trade societies, who, by their advice and offers of prizes, assist the work of the Department. In addition to the offers of prizes previously made by other societies for different subjects, the Institution of Heating and Ventilating Engineers have offered prizes to the value of £12 to the candidates who take the highest places in the Institute's examinations in heating and ventilation: the first award of these prizes was made on the results of the examinations in 1911. The Society of British Gas Engineers has also offered prizes to the value of ten guineas to the candidates taking the first two places at the Institute's final examinations in Gas Engineering and Gas Supply. In order to encourage attendance at technological classes, the Institute of Plumbers have offered prizes and medals to the value of £10 to the student taking the highest number of attendances in the session at evening classes in Plumbers' Work registered by the Institute.

The total expenditure for all purposes of the Institute during the year past in all its departments amounted to £48,343 3s. 2d., including a sum of £1,430 18s. 8d., part of an appropriation made by the council for the completion of the Engineering workshops of the Central Technical College and their equipment; and of £443 13s. 5d. extraordinary expenditure on the extension of the Technical College, Finsbury.

The income of the Institute for the year 1912 is estimated to amount to £29,310, and the council, on the recommendation of the Finance Committee, have made the following provision for the year, subject to the various grants for special purposes:—City and Guilds (Engineering) College, including scholarships and £200 balance for extension equipment, £5,950; Technical College, Finsbury, £11,650; South London

School of Technical Art, £1,250; Department of Technology (including £350 for lavatory), £9,980; Leather Trades' School, £1,046; general administration, £1,600—total, £31,476. It will be noticed that the estimated expenditure for the year is £2,000, and the estimated receipts by receipt of £2,000, and it is registered that this is partially caused by the reduction of the contributions made by two of the Guilds.

THE STRUCTURES OF THE FUTURE IN RELATION TO AVIATION.*

By HORACE CREIGHT, A.R.I.B.A., P.A.S.I. (Member).

Although a treatment of the subject-matter of this paper may appear to be but drawing a bow at a venture, yet, as it deals with some questions of result which may not be very far from the mark. A necessary preliminary to theorising on the aviation structures of the future is a consideration of the structures of the present. These, of course, are met with at every aviation ground, and consist of the workshops in which the aeroplanes are constructed and repaired, the "hangars," or, in plain English, the sheds in which they are housed. To call a shed a shed is an English characteristic—in spite of the preference of the clergyman of the tale for terming it a certain kind of shovel—and I see no reason why we should not call a shed a shed, and have done with it. These buildings—workshops and aeroplane-sheds, as at present constructed, seem to be of a somewhat temporary character, the enclosures being of wood studding, covered either with boarding or corrugated iron, and the roofs being light corrugated-iron structures. This is only natural. In the early stages of any industry it is bad policy to erect buildings of too permanent a character, as it is very probable that short experience, as well as that considerable alterations in planning and arrangement are required. But in course of time, when the twin industries of aeroplane construction and aerial transit are established as large factors in our national industrial programme, buildings of this slight construction will not suffice. When, in any industry, standard types of buildings have been evolved, it is bad economy in the long run, to have resort merely to the semi-permanent forms of construction. Corrugated iron in our climate must be painted every year or so; otherwise the galvanising wears off and the material rusts through. The cost of maintenance is thus very heavy, and, even if the material is well painted, a life of more than thirty years is hardly to be expected. These remarks do not apply in quite the same degree to buildings with boarded enclosures; but there is the risk of fire to be considered, and in consequence this method of construction is prohibited by practically all local by-laws, except in situations remote from aeroplanes. All things considered, there seems to be no escape but that, when our knowledge of the requirements has been evolved from experience, aviation buildings will be as permanent in construction as those now erected in connection with the motor-car industry.

FORMS OF CONSTRUCTION.

When consideration is given to the form which this permanent construction will take, it is, however, a question whether plain brickwork will hold its own, or whether it is to give place to one of the more modern forms of construction. As regards the aviation workshops, these, in common with new workshops of other kinds, may very probably be constructed of a steel skeleton filled in with brickwork, or of that new combination of materials, reinforced concrete. Aeroplane-sheds, necessarily being, it is probable, will hardly lend themselves to steel-frame construction; but it would appear that reinforced concrete is particularly suitable for structures of this character. Experience in connection with the new General Post Office and elsewhere has shown that rein-

forced concrete is particularly suitable for buildings requiring large areas of unencumbered floor-space. Therefore, it may be assumed that it will, in due course, be largely adopted for the construction of aeroplane-sheds, particularly if it is possible, as I believe now to be the case, to form water-tight roofs of this material without asphalt or any other kind of covering. Our special constructional point in the design of aeroplane sheds, whether buildings of the present type or those of the future, is that, in the future, appears to be the doors or shutters to close the necessarily large main openings. At the London Aerodrome the constructors of the various aeroplane-sheds will be seen to have exercised considerable ingenuity in the design of the wooden doors. It is evident that the ordinary practice of making two folding doors to the main opening of a structure were adopted in the case of an aeroplane-shed, such doors would, on account of the great size of the opening, be most unwieldy, and the task of manipulating them in a gale of wind would be positively dangerous. Hence the need for doors or shutters which can be folded into several sections. While such a contrivance as that of having wooden shutters with vertical pivots sliding in grooved iron bars at the top and bottom of the opening may be efficient enough to warrant its occasional adoption in permanent buildings, it seems probable that in the best class of work, steel rolling shutters, similar to those adopted in tramcar-sheds, will be employed. Such shutters need not be in large widths, and would thus cause no difficulty in operation, while the advantage of having the shutters entirely out of the way when not in use is very evident. A further important constructional point which does not occur in modern aeroplane-sheds, but may be anticipated in future constructions, is the obtaining of large floor-spaces with the absolute minimum of columns or stanchions. At present the aeroplanes in use are comparatively small—that is, compared with those we may expect in the future—and it is not, I believe, customary to put a number of aeroplanes in one shed. But, in due course, when an enterprise with such a title as the London Aerodrome Company is set on foot, each building at the company's depots will doubtless be constructed to contain a considerable number of aerobuses, and with these vehicles exceeding by many times the size of a modern biplane it will be necessary to keep the floor-space almost entirely free from columns. To effect this with due regard to economy will be easy, but, provided for a skillful use of reinforced concrete the problem will be satisfactorily solved. Thus far the structures considered have been those for important aeroplane enterprises. But, with the development of the science of flying, it is to be anticipated that before very long ventures will be seized with the most daring, and their motor-car aeroplanes, and an aeroplane-shed will be a necessary complement to the outbuildings of a well-equipped house. The only special question which appears to arise in connection with such a building is the provision of a sufficient space for starting in front of the shed, it being an obviously difficult matter to start in the middle of a street, or in ordinary width, should such be allowed, as it probably will not be, by the responsible authority.

TOWN LANDING-STAGES.

The subject of the structures to be erected as workshops for the manufacture of, and as sheds for the housing of, aeroplanes makes no great demand on the imagination. Structures of this kind already exist as a guide, and, in any case, the uses to which the buildings are to be put are not such as to necessitate any striking departures in construction. When the landing-stages to be erected in large towns are considered, a more difficult and speculative question arises. The landing-stages will be necessary, almost self-evident. As soon as the risk associated with aeroplane flights has been reduced to a reasonable minimum, the present prohibition of flying over towns will be removed—or, at any rate, modified so as to be made applicable only to

* A paper presented at a meeting of the Institution of Municipal Engineers, held at the London Aerodrome, Hendon, on Wednesday, June 12, 1912.

CURRENTE CALAMO.

It is not wonderful, perhaps, that the Institute Members' Club Ticket has had some effect on the elections at the Institute. Of the Fellows it urged members to vote for, eleven were already on the Council's nomination list, and two out of the six Associate Members. So that not much real "new blood" has been brought in to "end this disastrous delay" in obtaining Registration, or "possessing qualifications necessary for the prestige and satisfactory government of the Institute." It is, of course, possible that Messrs. Perks and Pick and Quennell and Gammell and Gunn and Munby will straightaway find the royal road to Registration "on wide and tolerant lines." We shall heartily welcome half the zeal with that end in view which fired the determination of the Institute Members' Club to have "drastic changes in the personal [sic] of the Council." We shall not be with surprise if the "ins" lack the enthusiasm of the "outs" once again, now they are snug and warm for twelve months on the right side of the blanket.

We fear the fun next session of listening to more "Limehouse" speeches may be a poor exchange for the abandonment—if it is abandoned—of a policy which, if humdrum, was practicable. We rather regret that several men on the old Council who have done good work have failed to keep their seats. They will not be absentees long. We are glad that the high polls of some others testify to the fact that personal qualifications and well-earned professional pre-eminence still outweigh all partisan considerations. We wish the new President a brilliant term of office, and that he may retire by and by with the happy consciousness that the Institute has not failed either in its responsibilities to its own members or in its perception of the best means to unify and consolidate the whole profession. We are not sure that his first Council will effect much in that direction; but none will rejoice more than we if for once it is not true that "Blessed is he that expects nothing!"

The death of Alphonse Legros last December, not long after his tribute at the Tate Gallery to the genius of Alfred Stevens, will recall to many his strong influence on our own artists, both sculptors and painters. Though a fifty-years' resident in England, he certainly was not "British"; but that will not militate against the interest attaching to the present exhibition of his works at the National Gallery of British Art. Indeed, we hope the Trustees will, sooner or later, see their way to add permanently one or more of his pictures, if not an example of his sculpture. The present exhibition is a fair illustration of the divergent influences which characterised Legros's work. The contrast between the early "Cupid and Psyche," painted in 1861, and his later illustrations of the religious life—such as the "Angels," the "Pilgrimage," and the "Femmes en Prière," the "Refectory," and the "Rehearsing the Service"—need only be mentioned. Of his work dealing with the life of the poor, we have "The Barricade," hardly a success, and "Le Repas des Pauvres," infinitely better. All the portraits are interesting: we like the etching of Carlyle better than the picture.

The Amalgamated Society of Carpenters and Joiners, the principal trade-union in

England, has decided by a ballot vote to accept concessions offered by the London building trade employers. The labourers' and joiners' unions involved, whose notices were sent in, will be dealt with in due course. Instead of the immediate increase of 1d. an hour demanded by the men, the employers offered to the carpenters and joiners an increase of 1d. an hour in September, with a further 1d. an hour in March, the present hours to remain unchanged. The much-talked-of general strike in the London building trades, which was to have taken effect on the expiration of the notices next week, has, as we have intimated all along would be the case, been averted. We congratulate all concerned, and wish their common-sense and moderation were more general.

Readers who know the beautiful salt-glazed stoneware of the Martin Bros. should not miss the quiet exhibition now open at their shop at 16, Brownlow-street, Holborn, of the works selected by the late Charles D. Martin as being remarkable productions of the ware from the "firings" of many years, and never previously shown. Of the four brothers, only two survive—the eldest and the youngest, Walter Fraser Martin died suddenly last March. He was the chemist and scientist of the fraternal "firm," and with him some of its secrets of mixtures and colours have gone. Charles D. Martin, the "business man," died in June, 1910. Robert Wallace Martin—who, nearly seventy, has the complexion of a boy and the enthusiasm of youth—is the sculptor-artist, and Edwin B. Martin the painter and etcher. A talk with either of the two survivors is in itself a treat, ever so faintly alloyed with regret, as one leaves, that such lives as these men have lived are not for many of us to-day, hampered by the scramble which they have despised.

For every bit of their work is done, and has been done, by themselves. From the mixing of the clays to the designing, decoration, and firing of the finished pot at Southall, every piece is their own handiwork, never repeated, always varying in form, colour, and decoration. London-born, they began as potters at Fulham in 1873, and moved to Southall in 1877. Wallace Martin was in his youth a sculptor of no mean ability, and some of our readers may remember his exhibits at the Royal Academy. Very early the aim to produce the finest salt-glazed stoneware enthused him, and for forty years he and his brothers have gone "from strength to strength" in their quest of their ideal. A hundred times over the commercial potter would have patented some new combination or puffed some new "ware"—the lustrous blacks and metallic glazes alone would have made the "fortunes" of the worldly-wise, and deluged the country with mechanical reproductions. But the one aim of the Martins has been to better the last result in form or subject or colour, and nothing that we know in modern work exceeds the individual charm of their products.

Whether, speaking generally, they have bettered their earliest achievements is a matter of taste. Based as these were on the 16th and 17th century work of Flanders and Germany, and our own of Fulham, primitive and crude as the limited range of blue, brown, and grey colours may seem to some,

we confess to a preference for some of the examples at Brownlow-street that later ones do not disturb. Others doubtless will more appreciate the etched decoration of fish, dragons, flowers, birds, and foliage which they seem to have favoured in middle life. All will turn with mingled admiration and laughter to the unique grotesques which are among the later products of the genius of Wallace Martin, rivaling the fancies of the Mediaeval carvers, which must surely have inspired them. His son, Clement Martin, we are told, has lately joined his father and uncle, and inherits their genius. May he and others who may follow him keep to the old paths and give us still the embodiment of real "art-craftsmanship" till the day breaks for us all, and the shadows of sordid "art manufacture" flee away for ever!

It is announced in the official "Gazette" of London University that the contributions anonymously offered towards the purchase of the Bloomsbury site for the new central buildings have been cancelled. We are not sorry; nor are we surprised that the withdrawals seem curiously simultaneous! After deducting the various subscriptions and donations promised by the Duke of Bedford or the trustees of his estate, the cost of the site to the University stood at some £300,000, while its valuation for the purposes of the London County Council was stated to be £125,000. The site itself, intersected by thoroughfares, and incapable of proper isolation, was an impossible one. Of the two alternatives suggested, that we illustrated in our issue of March 22 last, by Mr. Barclay Niven, seems to us the more desirable. Anyhow, we hope the University authorities will not be hurried into making a bad bargain for the benefit of adepts in the art of throwing sprats to catch herrings.

We hinted in our issue of December 15 last that the bad reputation of Delhi as a plague-centre would doubtless engage the early attention of the British architects and engineers selected to arrange the location of the new capital of India, and are, therefore, not surprised that Mr. Brodie and his colleagues have preferred another site to that of the Durbar camp, which is more or less of a swamp after the monsoon rains. If, as we understand, the new site is to the south-west of the city, outside the Ajmere Gate it is on higher ground than that of the camp and on it are historic buildings which may well find place in the new scheme.

Lord Eversley presided last week over the monthly meeting of the Commons and Footpaths Preservation Society, held at 25 Victoria-street, Westminster. It was decided to ask the Home Secretary to receive a deputation to urge that facilities should be given for the second reading of the Society's Rights of Way Bill, which seeks to simplify the proof of rights of way. Arrangements for the settlement, on lines indicated by the Society, of questions affecting thirty nine footpaths and bridle-paths were approved, and it was reported that five minute objections had been referred to the Society for arbitration. The Society is assisting to secure the preservation of Leziate Heath N. of K., and H. of Ley Common, Suffolk, and also was asked to complete the fund for acquiring Minchinhampton Common Gloucester. We hope it will be forthcoming. The Society does a good work well, and

and support. Even amid the protest of the widow-surrender legislation, the Government might surely give the modest assistance it asks for.

London Museum destined to add to the knowledge of building materials to its other objects? An "Expert of the London Museum" quoted by the *New York Sun* says: "We do not know the method of the construction of Roman cement, but it is far older than any modern cement. Indeed, from some part of a Roman wall to be demolished, it is necessary to use dynamite. All we know is that pounded tile is a considerable element in the cement. For the most part, Roman walls are built with stone and from a concrete bottom." We thought most people knew why puzzoluana cements were first used in England, and that what we call "Roman" cement dates back only about a hundred years, and why its employment has been practically superseded by Portland cement.

The "unlucky number" is, apparently, still "taboo." Quite a number of London streets, mostly in the suburbs, have no N. 13 at all, the difficulty being got over in many cases by the subterfuge of 12A. That is the case (so a contemporary says) with Park Lane, where 12A is occupied by Mr. Herbert Barker, the celebrated house setter. The most famous street without a 13 is the Strand; but that is, perhaps, more by accident than design, for building operations have interfered with the original numbering.

A RURAL COUNCIL AND ARCHITECT'S FEES.

The Gwyrfai Rural District Council, Carnarvonshire, discussed on Saturday the remuneration to be paid to Mr. Hancock of the Welsh Housing Association, as architect for workmen's dwellings to be built at Clwydion, on a site now occupied by some condemned houses. Negotiations had, it was reported, taken place between the local committee and Mr. Hancock, and the council had approved provisionally of the committee's decision to engage the services of Mr. Hancock to prepare a block plan for a few houses and personal expenses, and for a contribution of twenty guineas to the funds of the association he was ready to provide sketch plans, etc., of the proposed dwellings. Since then a further letter had been received from Mr. Hancock to the effect that the executive of the Housing Association be prepared to assist the council in any way that might be deemed expedient, but for his professional services in planning the houses, site-renting, surveying, and advertising accounts, etc., on an outlay of no less than £2,000 he asked to be paid a commission of 5 per cent, inclusive of the fees mentioned in the block plan for the preliminary work. A communication was received from the local committee at Clwydion conveying their decision to his effect all negotiation with Mr. Hancock, inasmuch as he had departed from the usual terms, and to advertise for a new architect. Mr. Robert Jones, a member of the local committee, said they had decided to believe that they would not avail themselves of the services of the association, but that they had five pounds and a few guineas to offer him now. Mr. Hancock seemed surprised, and as he laid away the sketch plan, the ultimate cost might be £10,000, he could not decide upon such a small fee to be paid to him by the local committee.

Mr. Hancock had suggested that he be asked to increase the council's contribution to the preliminary work, meeting the cost of the design, the design's necessary

MR. WALTER CRANE ON THE REVIVAL OF MURAL DECORATION.

The presentation of diplomas and certificates to students attending the drawing and needlecraft classes in the Glasgow School of Art was made on Friday by Mr. Walter Crane. Sir James Fleming presided over the gathering.

Mr. Walter Crane, in the course of a brief address on Art, observed that he had always felt that art was a matter of instinct, and that the gifts of imagination and fancy and invention must be natural and spring from the individual heart and mind. Speaking specially in regard to design, he remarked that the old workshop system of the master workman with his pupils was being superseded by the art school. The reproach that an art school is too more or less theoretical was gradually being removed, and he was glad to see the technical side was so well cared for in the Glasgow School of Art. Many of his hearers were looking forward to taking up careers as artists and designers in the world at large, and although he thought it was certainly wise to make themselves acquainted with many branches of design, he was speaking now for the designer, to endeavour, as far as possible, to be what was called an all-round designer, yet he thought it was very wise to develop, to specialise, according to one's strongest individual feeling, so as to make their central study a stem, and the other studies subsidiary, or branches of the tree. He was glad to see that considerably progress was being made by the students in mural decoration. It was evident there was a certain movement in London and elsewhere towards a revival of mural painting, and one welcomed any indication of a wish to encourage what he would term the noblest of all the arts. No doubt the best system of encouraging the art would be to give commissions to experienced designers, and artists, and to enable them to draw into their service, as assistants, students from the schools. If something of that sort were done by means of money subscribed by municipalities or Government grants, he thought it would do a very great deal to encourage the art. They had public buildings, such as schools and hospitals, with any amount of wall-space at present absolutely bare, and the decoration of these walls would not only bring much pleasure and interest into the life of people who inhabited these places, but would contribute to the education of the children, and might be a means of permanently recording our history and life, which was certainly not wanting in interest compared with any age in the world.

LIMITATIONS OF DISTRIBUTING MACHINES.*

By HENRY B. BROWN, C.E.†

Within the past few years several different types of distributing machines have been designed in this country for the purpose of applying bituminous materials in the construction and maintenance of highways. The aim of some manufacturers has been to construct a distributor which will be able to do any class of work with any kind of bituminous material. Up to the present time, however, every distributor made is limited as to quantity and kind of material which it will distribute. There are many instances in which a distributor has applied materials of a certain grade with excellent results, and in some cases is so interested in the machine, because of their unfamiliarity with the different kinds of bituminous materials, have immediately jumped to the conclusion that any other kind of bituminous material could be distributed just as successfully. But the contrary has proved to be the fact is common experience, and a study of conditions will show that there are good reasons in explanation of it. In the first place, consider the different kinds of bituminous materials used in modern high-

way improvement, together with the amounts desirable per square yard in some of the different methods of construction and maintenance. First, there are the asphaltic oils and tars, which can be applied cold in amounts varying from 0.06 gal. to 0.25 gal. per square yard. Such materials are used mainly as dust palliatives, and several treatments may be necessary during a season. Asphaltic oils and tars used in the construction of bituminous surfaces are generally of a greater consistency, and require heat to render them sufficiently fluid for application. They may be semi fluid or semi-solid, which at ordinary temperatures require a great deal of work requires applications of from 0.25 gal. to 1 gal. per square yard. Work done by the penetration method usually requires the use of a still stiffer material, to be applied in amounts varying from 1.25 gal. to 2 gal. per square yard. Finish coats on bituminous pavements are sometimes specified to be constructed of asphalt that will set at a temperature varying from 0.5 gal. to 1 gal. per square yard. From the foregoing it is obvious that it is a very difficult matter to design a distributor capable of applying such a variety of materials in these varying amounts.

TYPES OF DISTRIBUTORS.

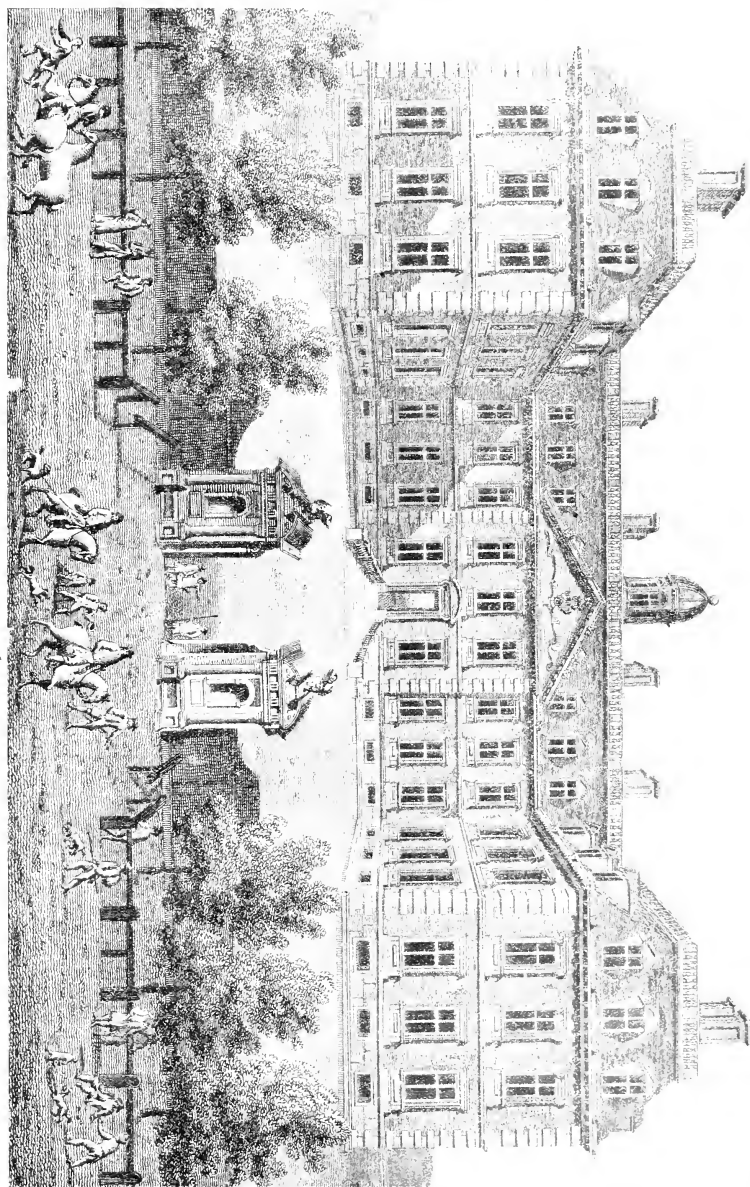
Consider next the different types of distributors. There are two distinct classes—namely, gravity and pressure distributors. A gravity flow-distributor is really nothing more than a larger viscosimeter. A pressure distributor differs from the viscosimeter principle in that it has the added feature of pressure which forces the material through the orifice. In the laboratory, the standard laboratory viscosimeter is an instrument for measuring the consistency of a material when fluid. Essentially, it consists of a receptacle holding a definite quantity, in which the material can be placed and heated to any desired temperature. The bottom of the receptacle is provided with an orifice for emptying. The measure of the force depends upon the time consumed for a certain quantity of material to run through this outlet. A distributor consists of the tank and the valved distributing pipes, which are provided with slots or holes through which the material must pass. In the laboratory, the principal variation made in the tests of different materials is the kind of temperature of the material and the size of opening, and the pressure—if a pressure machine—have to be taken into account. In order to distribute a definite amount of material per square yard the speed at which the machine travels also has to be reckoned with.

IN THE GRAVITY MACHINES

the material ultimately flows through a slot which extends the full length of the distributing device, through holes bored in pipes or through nipples fitted into the pipes at small distances apart. The slot is adjustable so that larger quantities of material can be applied by opening the slot wider. Using certain grades of material and quantities about 0.5 gal. per square yard, the elotted distributing pipe will apply the material in an unbroken sheet, if proper care is taken to prevent the parts from becoming clogged. In the case of the distribution of material by means of pipes provided with holes, since the size of the holes cannot be changed, larger quantities of material are applied by bringing into use more pipes or by changing the temperature of the material. Such machines are generally provided with two or three such pipes. The flow of the material, however, will consist of a series of small streams which do not unite on the road surface unless a large quantity of material is being used, or unless the distributor is equipped with brushes, a feature characteristic of some of the foreign types. If the separate streams impinge on a splash-board, it will serve to unite them to a large degree when quantities over 0.5 gal. per square yard are being applied. The character of the flow from pipes fitted with nipples is such that intervals apart is about the same as in pipes with bored holes. By inserting different-sized nipples in the pipe, however, the machine can be better adapted to applying

* Properly presented before the American Association for the Advancement of Science.

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LONDON HOUSE, PICCADILLY.

DESIGNED BY LORD CHANCELLER.

DESIGNED BY LORD CHANCELLER. ABOUT 1860. AD. - SIR ROGER DEATY, ARCHT.

GRANT REGULATIONS FOR TECHNICAL SCHOOLS, ETC.

The completed question, both in the material and financial, which are raised by the proposed revision of the Regulations for Technical Schools, Schools of Art, and other schools, is a fairly recent one. It is not, however, a new one. It will be continued in the next issue of the *Building News* and during the course of the year 1912-13, subject to certain modifications explained in the following paragraphs. The most important of the changes made are, consequently, upon the greatly increased amount of technical aid which is now available for agricultural education in the various areas by the advance made to the Board of Agriculture out of the Development Fund.

The Board of Education desire it to be understood that the withdrawal of the existing provisions of Article 31 of the Regulations does not imply an abandonment by them of the principle of an increase of the "technical" grant in the form of the application of a common rate of grant to the whole or a considerable part of the courses of instruction given in a particular area. On the contrary, they contemplate that the revival, and indeed the extension, of this principle will form an important element in the revision of their Regulations.

The Board desire to give notice that they propose, under the terms of Article 15 which remains unaltered, to call annually for a full account of the income and expenditure of the more important schools aided under the Regulations for Technical Schools. It is desirable that accounts of this kind, compiled on a uniform basis, should be available in order that the Board may have accurate knowledge of the cost of technical education of the more advanced types, and of the manner and proportion in which that cost is met from various sources. It is especially necessary to obtain such information in view of the possibility that the cost of maintenance may at some future date become an element in the assessment of grant for the more important schools. The grant will be called for in a form which the Board propose to prescribe after discussion with persons who are qualified to speak on behalf of the schools concerned, and it is contemplated that all accounts shall be made up to the end of the financial year on March 31. The first financial year for which the requirement will become operative in the case of schools not already rendering accounts will be that ending on March 31, 1913; but the Board will be glad, where possible, to receive accounts for the year ending March 31, 1912.

Certain modifications are made in Articles 28 and 29. The substance of these articles are as present as follows:

"28. No grant will be made for instruction in any subject or course in which less than 20 hours of instruction is given, either in the year or as provided in Article 24."

"29.—(a) No student's attendance in any course may be counted for grant unless he has received at least 14 hours of instruction in that course, either in the year or as provided in Article 24.

"(b) For the purpose of this article, no combination of subjects will be regarded as forming a grouped course unless it occupies at least four hours a week and 40 hours in all, unless the average number of hours of instruction received by each student admitted to the course amounts to at least 60."

Certain of the changes which the Board have decided to make in these articles are rendered necessary by the withdrawal of Article 34, referred to below. Other changes are made as the result of experience gained in working Article 29 (b). The grouped courses which this article was intended to regulate vary in duration within rather wide limits, and a more elastic requirement will be less exacting as regards the shorter courses, and can with advantage be substituted for the former requirement of an average attendance of 60 hours.

Under the modified Article 29 an alternative requirement of 50 per cent. of possible attendance is applicable to those courses of

shorter duration where the requirement of an average attendance of 60 hours per student is not implied by a higher percentage of regularity. The modified requirement will thus be satisfied if the average number of hours' instruction received per student is not less than 40 hours in a grouped course lasting for 80 hours in all, not less than 45 hours in a course lasting for 90 hours, not less than 50 hours in a course lasting for 100 hours, not less than 55 hours in a course lasting for 110 hours, and so on, the courses to which the full requirement of an average attendance per student of 60 hours will apply are those conducted for 120 hours or more. The modified article further provides that in applying either requirement regard shall be had only to those students who have attended the grouped course for 14 hours or more, and the result is thus to reduce the burden of any casual students who may attend for under 14 hours. The attendance of such students is in any case ignored in arriving at the total of hours ranking for grant, and if they are taken into account in calculating either attendance percentage or average hours per student, the results of the calculation may be adversely affected in a serious degree. For the purposes of the modified articles, such students will be ignored.

Provision is made in the modified articles for recognising and aiding courses of less than 20 hours' duration in certain subjects, such as ambulance, sick nursing, the management of children, and domestic hygiene, which were aidable under Article 34. Short courses in such subjects, of not less than 10 hours' duration, intended for students whose previous general familiarity with the subjects enables them to profit by instruction of a concise and suggestive nature, may be proposed for recognition under the modified articles.

(a) In view of the transfer to the Board of Agriculture and Fisheries of responsibility for technical instruction in agricultural subjects, grants in respect of all such instruction begun after July 31, 1912, and also grants in respect of any instruction begun after that date by any teacher recognised by the Board of Agriculture and Fisheries as a member of the staff of an agricultural college or of a county agricultural staff will be payable by the Board, and not by the Board of Education under the Regulations for Technical Schools, etc. The Board of Education, however, will still be responsible for aiding all special courses for teachers in schools and classes receiving aid from the Board of Education, and gardening, although regarded as a technical agricultural subject, will be aidable by the Board of Education in so far as the instruction is given by teachers who are not members of the staffs of agricultural colleges or of county agricultural staffs.

(b) Article 34 of the Regulations for Technical Schools, etc., which was originally framed to allow of aid being given to special short instruction in agricultural subjects, will cease to be operative, and no grant will be payable by the Board of Education in respect of instruction falling under Chapter 2 of the Regulations for Technical Schools, etc., except in accordance with the conditions laid down in Articles 25 to 33 of those Regulations as modified by the present Regulations.

(c) The withdrawal of Article 34 will not, in view of the new provision for short courses under Article 28 (b), materially affect the kinds of instruction, other than agricultural, aided under the Board's Regulations. The Board have, however, in administering Article 31, given credit to a small extent for expenditure by county authorities upon scholarships, exhibitions, and bursaries, in addition to those aided under Chapter 7 of the Regulations for 1909, and upon reference libraries for teachers and other minor educational activities which are included by authorities in Schedules K, L, N, and O of their annual schemes of work. The Board are sensible of the value of such activities as a supplement to more regular instruction; but they have come to the conclusion that they are not such as can suitably receive direct aid from them, in view of the

detached knowledge of local conditions which any satisfactory allocation of grant would entail, and such aid will, therefore, not be continued after July 31, 1912. The total amount of grant involved is inconsiderable.

APPENDIX.

The Regulations for Technical Schools, Schools of Art, and other Forms of Provision for Further Education in England and Wales, Part I. Grant Regulations, in force from August 1, 1910 (C.D. 5329), are hereby modified as set out below. The modifications take effect from August 1, 1912, except where otherwise provided.

Article 4.—This article is modified by the addition of the following:—(4) Grant will not be payable under these Regulations in respect of technical instruction in agricultural subjects begun after July 31, 1912, or in respect of any instruction begun after that date by any teacher recognised by the Board of Agriculture and Fisheries as a member of the staff of an agricultural college or of a county agricultural staff. Aid will, however, continue to be given in respect of any special courses for teachers in schools and classes receiving aid from the Board of Education, and instruction in gardening may be aided in so far as the instruction is given by teachers who are not members of the staffs of agricultural colleges or of county agricultural staffs.

Article 24.—This article is withdrawn and replaced by the following article:—Article 24. Where it is necessary, for educational grounds, that a course should extend over parts of two educational years, the Board may at their discretion treat the course for purposes of grant as belonging to either of those years.

Articles 28 and 29.—These articles are withdrawn and replaced by the following articles:—Article 28. No grant will be made for instruction in any course in any subject in which less than 20 hours of instruction is given either in the year or as provided in Article 24; except that:—(a) Instruction in any subject for a less number of hours may be approved as part of a grouped course satisfying the requirements of Article 29 (b); (b) short courses of not less than 10 hours of instruction may be specially approved in certain subjects if they consist of concise and suggestive instruction given to students who, by previous general familiarity with the subject enables them to profit by instruction of this kind. The Board will not, as a rule, recognise such short courses for students of less than 16 years of age, nor in arithmetic, English, and other subjects of general education, but they will be prepared, for example, to recognise such courses for teachers in subjects other than physical exercises, short courses for adults in ambulance or sick nursing, and short courses for women in the management of children or in domestic hygiene.

Article 29.—(a) No student's attendance in any course in any subject may be counted for grant unless he has received at least 14 hours of instruction in that course either in the year or as provided in Article 24; except that:—(i) the attendances of students who have received at least 14 hours of instruction in a grouped course satisfying the requirements of Article 29 (b) may be counted, even though the hours were in different subjects, if the number of hours received by all such students taken together amount to an average number of at least 60 for each such student or to at least half the total possible number of hours which might have been received by all such students taken together. (ii) The attendance of a student at a short course specially approved under Article 28 (b) may be counted for grant if he has received at least two-thirds of the total number of hours of instruction included in the course. (b) For the purpose of this article and of Article 28 no combination of subjects will be regarded as forming a grouped course unless it occupies at least four hours a week and 80 hours in all. (c) The operation of Article 28 (a) and of Article 29 (i) and (b) is retrospective so far as affects the hours of grant for the school years 1910-11 and 1911-12.

Article 34.—This article is withdrawn.

OBITUARY.

We regret to announce the death of Mr. Edmund John Milner Allen, of great age, after an illness extending over only a few days, at the age of fifty-two. After studying at the Royal Academy of Arts, where he was a Silver Medalist in 1880, he was elected Associate of the Royal Institute of British Architects in 1882 (extra Silver Medalist, Soane Medalist, 1883), and commenced practice in 1884. In addition to numerous and varied works, both alone and with the late Mr. Arthur B. Gibson, he was joint architect with Mr. J. W. Simpson of the Liverpool City Hospital (South); the Victoria Institute, Worcester; the Glasgow Fine Art Galleries, Kelvingrove Park (one of the most satisfactory examples of modern architecture in Great Britain); and the Cartwright Memorial Hall, Bradford.

Mr. Robert Morham, formerly for a quarter of a century architect of the City of Edinburgh, who had been in indifferent health during the last two years, died on Wednesday last week at his residence, 13, Laurier-road, Edinburgh. He had been intimately connected with the architectural development of the city during a period of about forty years, and was associated with many important municipal and public works. Born in Edinburgh on March 31, 1839, Mr. Morham was the son of the late Mr. Robert Morham, for many years magistrates' clerk in the city. He was educated at Newington Academy, the High School of Edinburgh, the Watt Institution and School of Art, and the Board of Manufactures Art School. He became a pupil of the late Mr. David Bland, and acquired a reputation as an expert draughtsman, and was associated with that architect in the building of the Life Association Offices, Princes-street, Daniel Stewart's Hospital, and the Commercial Bank. After serving for three years in the office of the late Mr. David Bryce, R.S.A., he proceeded to London, where he spent four years with the late Mr. Alfred Sedgwick, and then returned to Edinburgh to the office of the illustration of "Murray's Handbook to the English Cathedrals." On his return to Edinburgh, in 1866, he entered the office of the late Mr. David Cousin, then city architect, as his chief assistant. Mr. Cousin was the architect of the Corn Exchange, and laid out Jeffrey-street and Chambers-street, which were constructed in connection with the important improvement scheme begun under the auspices of Lord Provost Chambers. On the retirement of Mr. Cousin, in 1873, Mr. Morham was appointed city architect, and held the office till his resignation in 1908. It was from his designs that the Old City Chambers were enlarged and reconstructed, and he was also the architect of the corporation's hospital for infectious diseases at Colinton Mans, and for the reconstruction of the old police buildings in the High-street, the reconstruction of the North Bridge and North Bridge-street, and the building of the Waverley Market and the Central Fire Station. He was president at one time of the Edinburgh Architectural Association. Mr. Morham leaves a widow and a grown-up family consisting of a daughter and five sons.

Mr. Sydney Smirke, F.R.I.B.A., died at his residence in St. John's-road, Richmond, Surrey, on Wednesday last week, aged seventy years. He was in practice in Craig-croft, Claring Cross, and was the son, grandson, and nephew of Royal Academicians. He had been a Fellow of the Royal Institute of British Architects since 1888. The funeral took place at Richmond Cemetery on Monday afternoon.

The partnership heretofore subsisting between H. A. Levens and E. N. Hartridge, auctioneers and valuers, estate agents, architects, and surveyors, Broadway House, Bromley, Kent, under the style of W. Levens, Son, and Hartridge, has been dissolved.

A receiving order has been made in the case of Harold Greenwood Marrian (described in the receiving order as Harold G. Marrian), Station-chambers, Twickenham, lately Greenwood, St. James's-avenue, Hampton-hill, architect, surveyor, and civil engineer.

Building Intelligence.

CROSBY.—The new parish hall which has been erected in connection with St. Luke's Church, Great Crosby, on a site in Liverpool-road, was opened on Saturday. The buildings comprise the conversion of an existing dwelling-house known as "The Hawthorns" into lecture-rooms, class-rooms, caretaker's quarters, and a new parish hall. The alterations to the existing house include lecture- and club-rooms, seating eighty persons, with cloakrooms and kitchen on the ground floor. A lecture- and club-room, seating eighty persons, three classrooms for boys, girls, and infants, and caretaker's quarters are situated on the first floor. The new buildings are approached from the existing house by a corridor giving access to a cruciform hall. The parish hall, which will seat 500 persons, has a permanent platform extending the full width. Mr. Samuel Webster, of Bootle, was the contractor. It has been carried out at a cost of £3,500 from the designs and under the superintendence of Messrs. Woolfall and Eccles, architects, Castle-street, Liverpool.

LIVERPOOL.—The B-elvon of Liverpool laid on Tuesday the foundation stone of the new permanent church of St. Barnabas, Sefton Park. Mr. J. F. Doyle, of the same city, is the architect of the church, which will accommodate 604 worshippers. The style is Late Decorated. Stone will be employed for the columns, copings, window tracery, and other dressings, a rustic brick being used for the walls. Part of the base of the tower will be in iron. The body of the church. The contract for the first section, on which work has now begun, will embrace the nave, aisles, and transept, the foundations of the tower and porches, the drainage, heating and lighting, the cost being about £6,500. There will remain the chancel, the vestries, and organ-chamber, the base of the tower and porches, the side-chapel, the sanctuary wall, and the upper part of the tower. The vicarage will be independently provided for.

WALLSEND.—The new public baths at Wallsend were opened on Wednesday. The baths, which front Lawson-street and Vine-street, are designed externally to harmonise with the adjoining municipal buildings. The swimming-bath hall (one of the largest in the country) is 118ft. long by 56ft. wide, and is planned with galleries, with accommodation for 700 spectators. The bath pool is 100ft. by 30ft., and runs from a depth of 3 ft. to 6ft. 9in. A filtration plant keeps the water in a state of purity. There is provision for slipper baths, and the laundry is equipped with power-driven labour-saving machinery. The building is lighted by electricity. The architects were Messrs. Liddle and Liddle, Eldon-square, Newcastle; and the builders, Messrs. W. Cradock and Son, Newcastle; and the engineer, Mr. T. D. Hall, Wallsend.

At a meeting of the directors of Arbroath Infirmary on Tuesday it was announced that the special building committee recommended the erection of a new infirmary at an estimated cost of £12,000. After consideration, the directors approved the recommendation of the committee, who were desired to take in estimates, and to proceed at once with the erection of the new building.

A children's home is about to be built at Edinburgh, in the field situated at the corner of Porterfield-road and Crewe-road. The main buildings consist of an administrative block, comprising two wards, a two-story double pavilion wings, accommodating 114 beds in all. These wings are connected to the administrative block by buildings containing dining-rooms, main corridors, and smaller wards on the upper floor. The administrative block contains staff accommodation, matron's and service accommodation, kitchen offices, and a central bath-room. Between the main buildings and Crewe-road is situated the preliminary block, containing two wards, medical inspection room, laundry, and disinfecter. The buildings, which are designed by the architect to the parish council, Mr. R. M. Cameron, will be built with brick and harled walls, and will have projecting red tile roofs.

COMPETITIONS.

BENTFIELD SEWAGE DISPOSAL.—In the recent competition for sewage-disposal schemes promoted by the Bentfield Urban District Council the following awards have been made: First premium, Messrs. Taylor and Wallis, Newcastle-on-Tyne; second premium, Mr. G. H. Stimpson, Carlisle, Cumbria. The cost of the completed scheme will be £20,000 to £20,000.

DUNFERMLINE.—Fifty three designs have been received for the institute which the Carnegie Dunfermline Trustees intend to erect in North-west-street, Dunfermline. The award of the assessor is expected to be made known at the end of this week; but the result had not reached us before going to press.

LYMINGTON.—Forty four designs have been submitted for the proposed new municipal buildings at Lymington. The town council decided to select designs from architects, and appointed Mr. A. F. Gutteridge, architect, of Southampton, as their assessor, and to advise upon the relative merits of the designs submitted, and select one for adoption. The entire cost of the proposed new buildings is not to exceed £1,800, and there has to be provided a good entrance hall and approach to the council chamber, offices, etc., an office for the town clerk and staff, a council chamber, which will also be used as a magistrates' court, magistrates' retiring-room, a prisoners' waiting-room, a committee-room, members' cloak room, etc., and heating apparatus, coal-store, etc. The selected design will shortly be on view.

PORTLAND.—From the seventy-seven designs submitted for the Public Office competition at Portland, Mr. Needham Wilson, the assessor, has chosen the plans of Messrs. Spier and Beavan, of Borough Chambers, Cardiff, with a premium of £50. Mr. E. Fitch, of John-street, Adelphi, was awarded the second premium of £10.

The council of the Architectural Association have arranged for a week-end visit to Liverpool, July 13 to 15.

A new synd hall is about to be built at Armagh at a cost of £4,000. Messrs. McLaughlin and Harvey, of Belfast, are the contractors.

The Widnes Town Council decided on Tuesday night to fix Hill a favorite resort of Warrington, St. Helens, and Liverpool picnic parties, as pleasure grounds, at a cost of £685.

Mr. Charles R. Wells, formerly a well-known master builder in Newcastle-on-Tyne, who had retired from business, died at his residence in Westmoreland-road, Newcastle, on Sunday, aged 82 years.

In restoration work at Little Steeping Church, Lincolnshire, a stone step has been found to be an inverted monument bearing the recumbent effigy of a priest and some wording in Norman-French. The figure is believed to be that of the rector who built the church in the thirteenth century.

The formal opening of a new water supply for Fraserburgh took place at Bogness, near Strichen, on Friday. The source of the supply is at Federatte, fifteen miles from Fraserburgh. The supply equals a flow of 100,000 gallons per hour, and the cost has been £52,000. The engineers were Messrs. Carter and Wilson, Edinburgh.

The Chester Corporation received on Tuesday the sanction of the Local Government Board to a scheme for generating electricity by water power, obtained from the River Dee on the site of the famous Dees Mills. The supply of electricity thus obtained will be auxiliary to that derived from the corporations power-station. The scheme is sanctioned amount to £14,000, of which over £7,000 are for turbines and dynamos, and £5,000 odd are for buildings.

As a memorial to her late husband, Mrs. Charles Heywood, of Chasely, Pendleton, is building a church for the Brimblehead district of St. Thomas's parish, Pendleton. The site is Sharp-street, and is given by Mr. H. Heywood. The architect is Mr. F. P. Oakley, A.R.I.B.A., of Haworth's Buildings, Manchester. The church, which will have seating accommodation for 300, on a plan of the existing St. Anne's Church, now much too small for the requirements of the neighbourhood.

PROFESSIONAL AND TRADE
SOCIETIES.

EXCURSIONS.
PALEONTOLOGISTS' VISIT
 to CONSUM. The annual excursion for

The Archaeological Excursion for the year 1912 was held at the residence of the Wotton-under-Edge and District Archaeological Society took place on Saturday, August 18th. It was accompanied by the president, Colonel G. A. St. John, who journeyed in motor omnibuses from London, Newport, High Ercall, Stratford, Hazlemere, Abbey, Battle, and Sarsbury. After a short time had been spent in Sarsbury county town, the party proceeded to the excavations of the Iron Age and Roman cities of the area. The excavations are now directed, in the summer, by the excavations to be begun there in the autumn. The ruins of the Roman city of Wotton were inspected, and a visit made to Wotton parish church. The journey was continued to Wellington, and the members of the society, who number about 100, were entertained at the Grosvenor Hotel. An interesting paper on the Roman was afterwards read by Mr. James P. Jones, of Tottenham.

DECORATION OF PRAIRIE CHURCHES.—Sir W. B. Richmond, K.C.B., R.A., presided over a meeting of the Church Auxiliary of Art Workers held at the Church Hall of Holy Trinity Church, St. James Street, on Friday afternoon. The

erty exist in order to interest artists and workers in the arts and crafts in making simple, tasteful furnishings for the churches which are springing up in different parts of the Empire to meet the requirements of emigrants, and at present they are concentrating on the needs of the rough prairie churches of Western Canada. Sir W. Richmond remarked that their project was full of hope, and he believed that if their work was conducted wisely, and they did not attempt to move too fast, it would be a great success. Miss A. A. Mohrly asked their helpers to give some beautiful thing to the furnishing of some church; but they wanted "a thing to be quite simple and in good taste."

EDWIN HURGH ARCHITECTS. AT VESTER HOUSE—A party of over thirty of the members of Edinburgh Architectural Association visited Vester House, Gifford, and the old castle of Vester on Saturday afternoon. The manor of Vester was granted to William de Vester, a Hugh Gifford, who later, under an Englishman, and settled in Leith under David I. From that early age till the present day Vester has remained in his descendants. Another Hugh Gifford, died about 1100, had not a son to inherit his estate, and his daughter, marrying William de Vester, brought the Vester lands with the patronage of the church, to him, and their conjoint posterity. The old castle was visited first, and the Gold Hall—which is alluded to in Canto Third of "Marmion," and is still in a good state of preservation, was visited with much interest. The manor house, which stands on a finely wooded ground, near the left bank of Gifford Water, and was built about the end of the 18th century. It is a large three-story building, built from designs by Mr. W. Adam, but has been severely altered and improved since then. The public rooms, which are on the first floor, are portraits, which are in a good period, were greatly admired. The gardens were afterwards visited.

INSTITUTION OF WATER

ENGINEERS.—A two-day meeting of this society was held at Chesham on Friday, September 10, under the chairmanship of Mr. J. H. S. Packer, the borough engineer. The opening address, emphasised the importance of the quality of a public supply of water, and the supervision of the works by a competent engineer and chemist, also the correct and systematic treatment of even hard water by the addition of chemicals was especially important. The subject of modern uses of purifiers was also marked, and it was now necessary to decide whether the unimpaired water supply, which is undergoing a treatment of purification, was not better than the water obtained from the source of ground or unimpounded water. It was also a type of filter that

LONDON ASSOCIATION OF MASTER

STONEMASONS. Mr. Walpole Collins, who has occupied the positions of hon. sec. and treasurer of the London Association of Master Stonemasons since the Association was founded, three years ago, has resigned those offices, and Mr. Frank Mortimer, of 11, Bee street, Walthamstow, E., has been elected as his successor.

NORFOLK AND NORWICH ARCHÆO-

LOGICAL SOCIETY.—The annual meeting of this society took place at noon on Wednesday week in the council chamber of the Guildhall, Norwich. The president, the Earl of Orford, was in the chair. The report of the previous year's proceedings was read, and a guarantee of £160 had been raised for the publication by Mr. T. Hugh Bryant of his monographs on the churches of Norfolk. It is proposed that the work be published in the same size and form as the volumes on Norfolk Archaeology, the price being 32s. for 100 copies, according to the number of subscribers. The report was adopted. It was announced that the annual excursion will take place early in August. It is proposed to visit Hingham Church, Gorleston Hall, Southwold, and the priory at Horwold. The members afterwards visited the old Nonconformist chapels in the city—an innovation on the society's fixtures. These included the severely simple Friends' Meeting House in the Gildencroft, the Octagon Chapel built by the Quakers, and the Unitarian Meeting house which had stood for sixty-six years, and the Old Meeting House erected in 1693.

PALESTINE EXPLORATION FUND.—

The annual meeting of the Palestine Exploration Fund was held on Tuesday at the Portman Rooms, Baker-street, W. The Bishop of London, who presided, described his recent visit to the Holy Land. Sir Charles Watson (chairman of the executive committee) presented a résumé of the operations of the fund since it was established forty-seven years ago, and of the work done by successive explorers. With regard to the examination of the mound of Ain Shems—believed to be the site of the Beth-Shemesh of the Bible—explorations were begun last year by Dr. Duncan Mackenzie, assisted by Mr. F. Newton. Since the last annual meeting much has been accomplished, and by examination of the pottery found on the site, and of the tombs in the adjacent necropolis, Dr. Mackenzie had been able to draw some conclusions with regard to the history of this city. Dr. Mackenzie wrote that after the destruction of the city the place seemed to have lain desolate for many centuries until, in Byzantine times, a large monastery was founded, on the site of which the ruins still remained, and underneath which Dr. Mackenzie had found remains belonging to the successive periods, when Beth Shemesh was in possession of the Canaanites, the Egyptians, the Philistines, and the

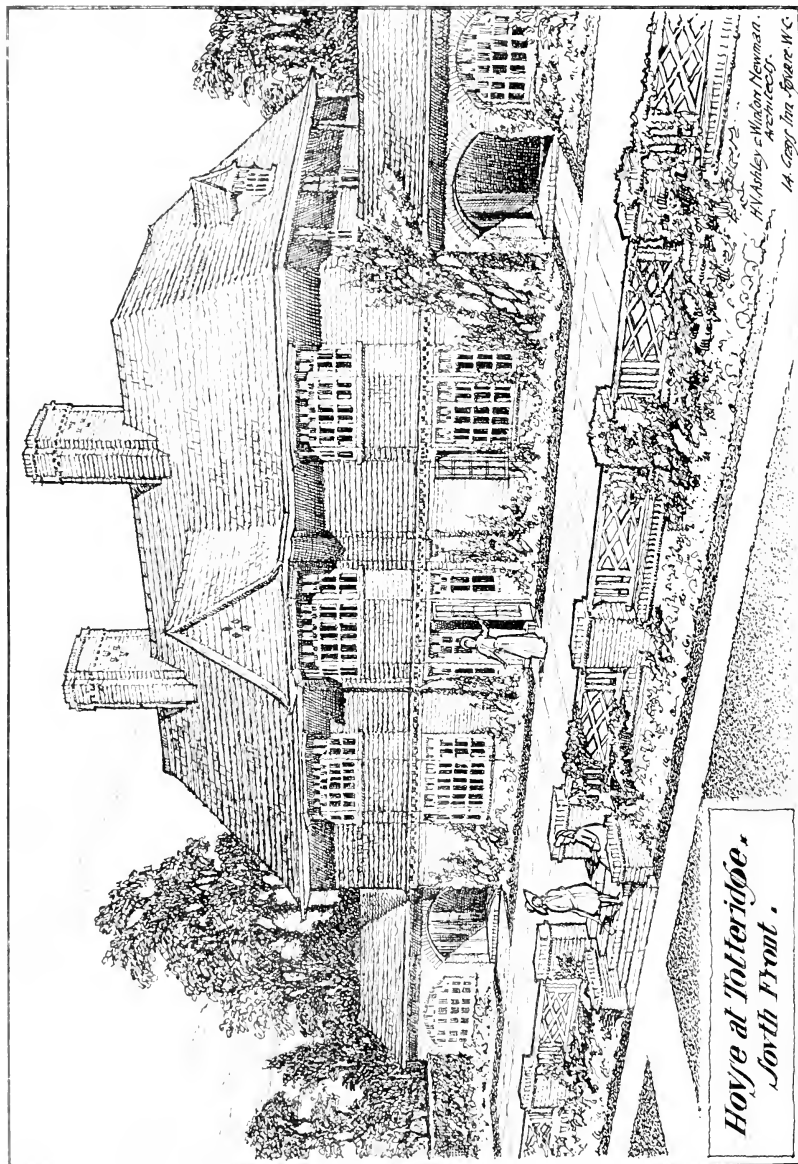
SOCIETY OF ARCHITECTS—Students'

SOCIETY OF MERCHANTS.—A sketching visit has been arranged to Morden College, Blackheath, on Saturday in next week, the 22nd inst. Students and friends will assemble at the college not later than 3 p.m. Each member of the party will make his own way to the college, which can be reached by motor-bus or rail (S.E. and C.R.) to Blackheath. The sketches made by students during this visit will be eligible for the third quarterly competition. The visit is also open to members of the Society and their friends.

THE YORK AND YORKSHIRE ARCHI-

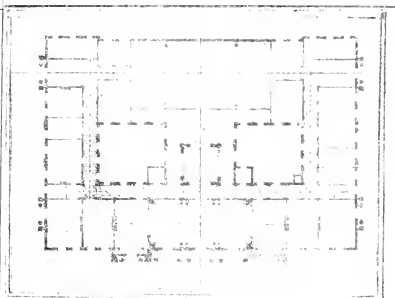
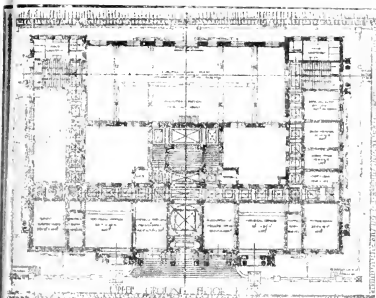
TECTURAL SOCIETY.—Mr. H. E. HENDERSON, who has been for some time hon. secretary of the York and Yorkshire Architectural Society, and who is leaving for Nairobi, British East Africa, has been entertained at a banquet at the Windmill Hotel by the members of the association, to which he had rendered many valuable services. Mr. B. Burleigh, president, presided, and he was supported by nearly forty members of the association. Songs were contributed by Messrs. Cassell, E. J. Underer, A. A. Airex, J. R. Thompson, E. R. Sample, E. Airex, J. Priestley, S. Needham, A. B. Burleigh, F. S. Stone, etc.; while recitations were given by Messrs. Pollard and Millburn. Piano-forte solos were contributed by Messrs. Crutch and Bean. The selections by the vocalists were of a high order. During the evening the chairman presented Mr. Henderson with a suit case from the members of the association, and referred in eulogistic terms to the work which he had done as their

The estates committee of the corporation is formulating a scheme for the construction of a new main cross-theregang from Lichfield-road to the Laanias-roads. The new road will, if the project is adopted, have its commencement at the junction of the Green Common, at the entrance to the Nursing Institute in Lichfield-road. From this point until it merges into the Wealden-road opposite Corporation-street, the route will cover nearly half a mile, and it will be necessary to erect a bridge over the River Sow and several culverts. The total cost of the scheme is estimated at between £7,000 and £10,000.



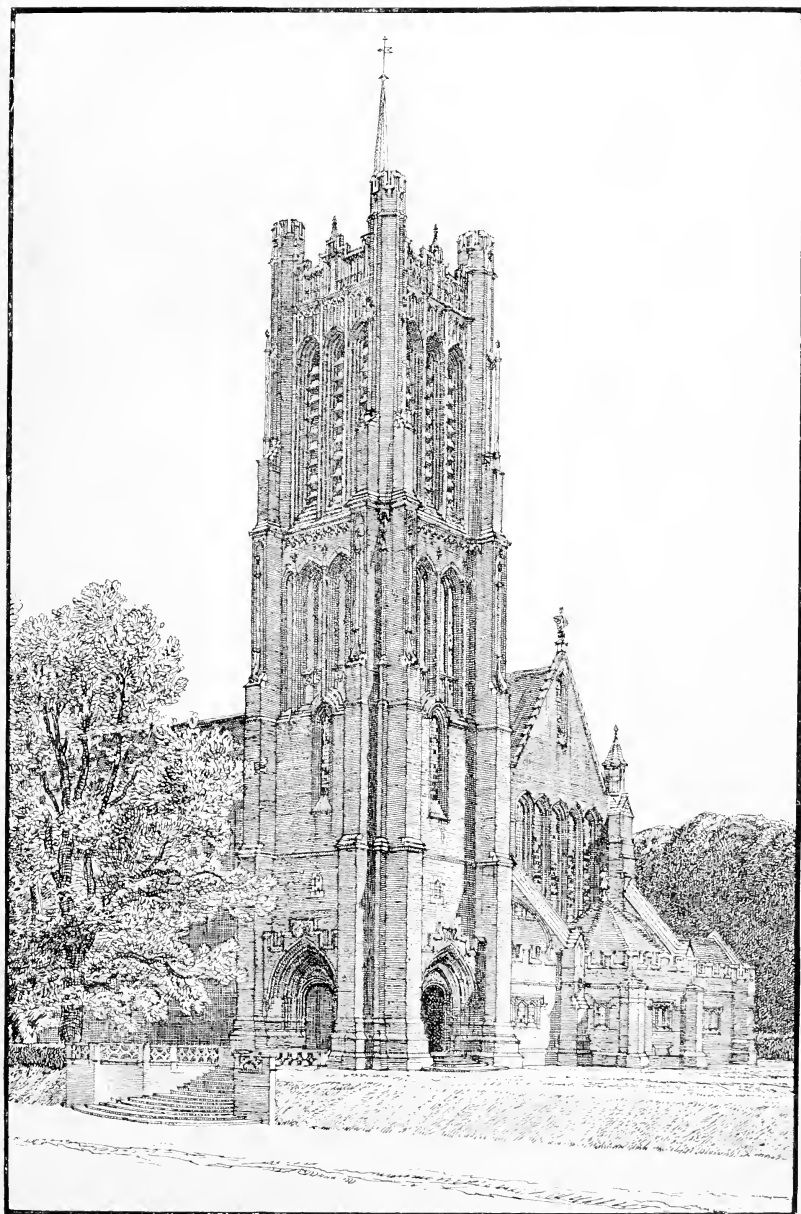
*Hove at Totteridge.
South Front.*

*H. Ashley & Wilson Newman.
Architects.
14, Gough Inn, Strand, W.C.*

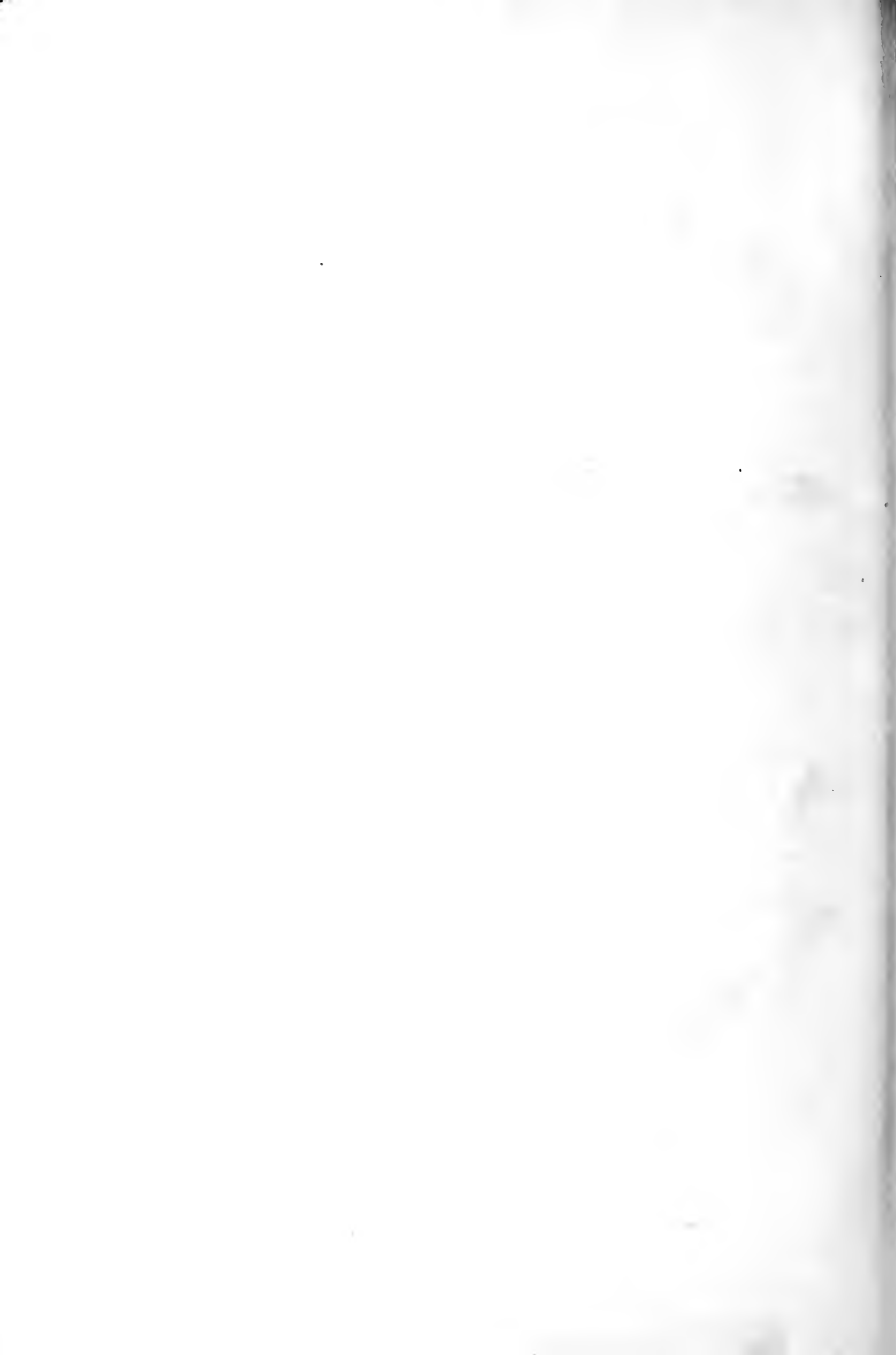


*Edwin C. Taylor
18 Grey St. N. Y. C.*





CHRIST CHURCH, SUTTON, SURREY.—Mr. D. G. ROUND, Architect.



THE BUILDING NEWS
AND ENGINEERING JOURNAL.

Effingham House.

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"LOOKING BEFORE AND AFTER."

Some time before the middle of the nineteenth century, an architect, who, if he was not great, was anyhow great enough to have detractors, built the "Egyptian Hall," in Piccadilly. Perhaps its name was given to it in a spirit of admiration by some boy who would never have dared to explore the land of the Pharaohs himself; perhaps it was assigned it by the architect, sick of his work, and weary of its ways; for, weary of Egyptian Halls, and what he seems to have fancied was the "Egyptian style" did not find popular favour. Even the Meirebaited Prince of Wales did not leave the beauties of the Bermudas for the browner race on the Mediterranean shore, and Byron could write about "Maid of Athens" before his worth had been recognised there, while he was at Athens doing his duty. The name of the Hall, however, from his private letters to intimate friends, edited by Miss Yewsbury, and published not many years after Byron's death.)

But the "Egyptian Hall," famous as it always was from any Egyptian age of architecture, may stand today for one of the earliest of our national attempts to mark styles by what we once heard a Cockney describe as their "ancienry." This idea was that the late Mr. Butterfield, in restoring an old church near the Lands End, had "obliterated its ancienry." Perhaps he had. It was what many church restorers did 40 or 50 years ago, with many old churches, and in worse ways than Mr. Butterfield could fairly be charged with. It was the spirit of the times; a time far away from cure, and a world far away from it. In its own day it was looked upon as "age of beginnings," the age of the patriarchs, who then were supposed to find time for all they did, and all their successors invented, in the five or six thousand years between Noah's flood and today. But since then Noah's flood has been moved by centuries, and centuries of centuries, by scientific men. Nobody "seems one penny the wiser," or calls himself a Socialist because of it, even though he could not subscribe the 39 Articles with the same simple faith in which his great-grandfather's name was appended to them, when he entered his college. The old "Egyptian Hall" (we mean the Piccadilly one) was just one of the first moves of the last-century shaking; and every successive one had to be two or three times as good as its predecessor. In the mean time, it is pleasant to see how the old headings persist, at least in the old class journals.

We were saying that the Piccadilly "Egyptian Hall" was the last English relic of the time when it was thought a holy and orthodox thing to work in a style which dropped out of use "long, long ago," and if you could not really work in it, to pretend you did. The people who saw your work were, most of them, very easily taken in; and three who saw through the work did not dare to say so. All the geese of the period were ready to cackle behind them, as those that remain still mostly do; and some of us still remember the attempt to bait Professor Owen into an admission that death could not have arrived in this world before sin. The professor, mild as he was, would not put his name to a falsehood; and the whole assembly of drapery-makers and milliners, as a church, being dissolved, is still here, and still ready to discuss whether a Christian is at liberty to eat in an un-Christian way, and to do un-Christian things. Most of them think he is. Perhaps, with a little more thought, they will be doubters again; but all depends on the directions they receive (from below, if not from above), and on the wages they get. If there was ever anyone hopeful enough to suppose that to work, if we knew how, just as the ancient patriarchs did, would bring us to work on their moral system (imperfect as it was), he hoped for more than he was likely to secure. On the other hand, the builder of to-day can get good bricks, and can lay them in good mortar, if he can pay the cost, which is more than the fathers of the faithful could be sure of. Sun-dried bricks, either near the Nile or the Euphrates, return to that pale, "from whence they spring." Wood-dried bricks are more durable, and these we can get, if we want them; but kiln-baked bricks may be better, even if our moral age, if possible, no worse than those of Abraham and his earlier descendants.

We architects should be having a better time than we looked for, if the goodness or badness of a century's art implied the moral goodness or badness of the men that made it. That is one of the grossly-greedy theories of the past—perhaps to be brought back some day as a new thing, when its age has been forgotten. Ruskin, alas! is dead, and no one now can form absurd fancies by the power of rhetoric, or people with a memory for facts. Besides, artists, like nature-students, look farthier back than they *did* do. "Papa Abraham was" new in us only a little way. At what epoch exactly did Babylonian civilisation begin, and what, in long procession, came before it? The beginning of architecture was not near the beginning of art; nor was this.

many a score of years, the beginning of design. The forms men feebly tried to imitate when they began to build—the fishes and water-insects—had used up endless lifetimes in bringing to perfection—the perfection, such as it was, when Plesiosaurs and Ichthyosaurs were the food of critics who had to be satisfied. The antiquaries who thought that an "early" style must mean a style at least as early as Abraham, were antiquaries of the school Pope ridiculed, who said:

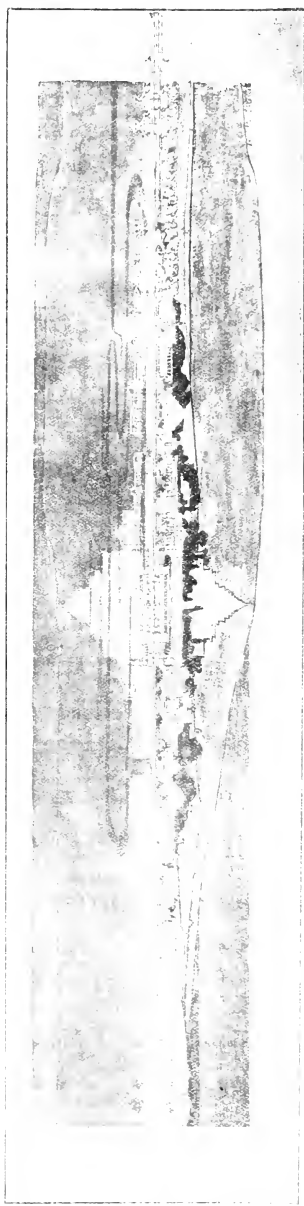
"Nothing there is to come, and nothing
past;

But one eternal noir does ever last." And they were all but ready to say how long it had actually lasted. Darwin, a mild-mannered man, moved the break in creation from the days of Moses back to the days before the Flood, and, with others, showed that most of the things we see must have been first seen even as long ago as that. He opened the gates of the past for us poor sand-blind dwellers in the present, and these, as time goes on, will open wider and wider.

But we have had enough of copying the past. Is it not time to leave something for the distant future to dig up and regret? Alas! this is beyond our power. We cannot even say what will be the practical wants of the railway-station (if any railways remain 190 years hence), or of the fact that (if factories have not vanished also); then we can make the model of a steam locomotive to suit the days of Edward I. That eminent monarch, had he lived twice or thrice as long as he did, would have seen the world, for practical purposes, doubled in size. But he lived and died, with America still unimaginable, and Australia unexplored; the countless islands of the sea unvisited, save one in an age by some Northern rovers, and both the Poles unexplored white men. We have got on pretty well since Conway Castle and St. David's Church are; but it would have puzzled the prophets to say whenabouts we shall find ourselves in Anno Domini 1912. And it would puzzle their descendants to say to say where we shall be in a hundred years more. Astronomers can tell more or less in what direction, and at what rate the sun and its planets travel. In the course of time, or almost instantly, some old stars will have come to pass away, and some new ones will appear. But earth changes faster than any of these; and the world we live in will be a different world long before there is a different sky to arch it. The future depends on the inventors, and on what they are pleased to invent. The



SECTION THROUGH CENTRAL BASIN, TOWN OF COVINGTON, LA.



Notwithstanding the severe climatic changes in England, few precautions are taken against the grave inconvenience of waste occasioned by frost. House pipes are often left unprotected, and so placed that a burst will cause considerable damage.

Cisterns are frequently situated outside, and when they freeze solid are the cause of serious annoyance. The pipes and fittings in the ground should always be laid a good depth, and all exposed pipes and fittings should be protected with some non-conducting material. I expect the Deacon waste-water meter is familiar to all of you; there is no doubt about its excellence in the shortness of waste, as one meter can control a large part of a district, but there are many authorities who would hesitate to install this system in consequence of its cost and manipulation. It has even been suggested that every house should be supplied by meter just in the same way that it is supplied by gas. That is an exceedingly expensive way of controlling the supply in a large district, and leads to the other extreme of undesirable parsimony in the use of water. To install the meter system in my own district would cost £5,000, the cost of maintenance and inspection would necessarily be higher, which would mean raising the price of the water pro rata, as consumption was large or small, to cover the extra cost of maintenance.

There is one matter I should like to refer to, with which I have no patience, and that is the parsimonious spirit of some public water authorities, who begrudge the engineer-in-charge the assistance of inspectors and fitters for the proper, economical, and expeditions control of the works which he has to administer. Quite recently a surveyor informed me that the cost of water in his district was so large as to be quite absurd. It has never been the custom of his authority to leather taps; but some time ago he made an inspection of his district, and with some assistance leathered, or saw to the leathering of, the taps himself. In one month, he tells me, he saved by these means no less than 400,000 gallons. Assuming it cost 6d. per gallon to pump so large a quantity of water, the saving is quite equal to paying the wages of two men permanently employed, apart from the saving to the consumer's fittings, and also the saving of this precious and absolutely necessary fluid. Speaking of the works under my own control, I am pleased to say that it has always been our custom to leather and repair consumers' service taps, and to fix the taps free of charge (excepting the cost of the tap). The result has been highly economical and satisfactory, the average consumption, excepting periods of continued drought, does not exceed 12 gallons a head per day, including that used for trade purposes, and we supply a population of 10,000. Previous to obtaining an additional supply, I am quite sure our system, comparatively speaking, was saved from absolute failure by our methods of checking waste. Our methods have enabled us to keep in touch with, and to gain the confidence of, the consumers; the reporting of leakages is encouraged; and it has had the effect of making each and all of them an inspector, as they are the cause of the promptly reported leakages, and if they are not promptly attended to, of course there is a row. Notwithstanding the result, there are some, I am sorry to say, who disagree with our methods, but I sincerely hope that wise and experienced counsels will prevail. Under any circumstances, no one can dispute that our system means a saving to consumers, and it is undoubtedly a joint means of preventing waste. It is only fair to state that plunge-baths and water closets are not in general use, but probably 40 per cent. of the consumers have one or the other, or both, so that our rate of consumption is certainly 40 per cent. below the theoretical quantity required per adult per diem.

Before concluding, I should like to summarize a few things which would certainly have the result of checking waste.

1. Night Inspection. — This need only periodical, but it would be the means of discovering underground leakages, as well as other causes of waste. The method to adopt

would be for the inspector to proceed round the district during the night with a sounding-rod, and to hand over the result of his discoveries to the fitters for further inquiry into the matter the next morning. This would have the effect of finding out willful waste, as well as that due to defective fittings.

2. First class fittings of approved construction should be rigidly insisted upon, as well as the laying and fixing of pipes for protection against frost.

3. The enforcement of two-gallon closet flushing-cisterns, and automatic flushing-cisterns of stated capacity for urinals. Great economy in the use of water could be effected if it were possible to provide a satisfactory and water-saving substitute for the plunge-bath.

4. Outside closets could be an approved make of the waste-water type.

5. Public inspection and repair of draw-off apparatus, such as leathering, etc., free of charge.

6. Covered reservoirs for spring water to obviate the waste caused by the necessity of cleansing of algae, or water-weed, which rapidly forms in hot weather. (This advice may be somewhat superfluous, as spring-water reservoirs are very rarely left uncovered nowadays.)

7. Plenty of air-valves and sluice valves to prevent the emptying of long lengths of main when repairing or tapping.

8. Apparatus for tapping mains under pressure, and so save emptying them when doing this work.

9. Pressure-reducing valves in very hilly districts, wherever possible to fix them.

I should like to say, in conclusion, that one of the objects of this paper is to give food for thought among those who may be personally interested in this subject, whether publicly or privately—especially with regard to its importance. The question of preventing waste as far as possible, without curtailing the legitimate requirements, or causing inconvenience, annoyance, or undue expense to the consumer, would then, I think, be soon effected. Furthermore, as waterworks engineers, I am sure we all agree that the legitimate prevention of waste in our public water supplies is a serious duty, whether from a national or economical point of view.

MUNICIPAL WORKS AT EAST HAM.*

By J. E. W. BRETCH, Engineer and Surveyor.

PUBLIC BUILDINGS.

A site of six acres was purchased in the centre of the borough, in the year 1859, and the following buildings have been erected thereon:—

(a) Town-hall and municipal buildings, costing £46,054 (price per foot cube, 1s. 0½d.), from designs of Mr. Henry Cheers.

(b) Adjacent to the town-hall is the technical college, erected at a cost of £21,676 (price per foot cube, 4s. 2½d.), from the designs of Mr. Henry Cheers.

(c) In connection with this college, there is a well-appointed gymnasium and workshops, erected four years ago at a cost of £2,750 (approximately 5½d. per foot cube), from plans prepared by the late borough engineer (Mr. A. Horsburgh Campbell, M.Inst.C.E.).

(d) Additions have recently been made to the town-hall buildings by the erection of education offices and public health department, mortuary, etc., from designs prepared under the supervision of the late borough engineer, and erected by the Council's own workmen, being completed under the supervision of the author at a cost of £5,600 (price per foot cube 1s. 10½d.). The cost of the mortuary buildings was £150.

(e) The central Carnegie library was erected from designs prepared under the supervision of the late borough engineer, and erected by the Council's own workmen under his supervision, at a cost of £9,000 (price per foot cube, 10½d.).

(f) At the rear of the central library there has recently been erected a covered in public swimming-bath. The swimming pond is

120ft. by 40ft. For a distance of 30ft. from the shallow end, it has a uniform depth of 3ft., the remainder ranging from 3ft. to 6ft. 9in. at the deep end, the deepest portion being 8ft. 6in. over the outlet. The bath proper is constructed of cement concrete retaining walls and floor, the whole being lined with marble terrazzo, and is fitted with the usual accessories of diving board, etc. A series of dressing boxes (76 in all) is ranged along the two sides. There is seating accommodation for 300 persons, formed by concrete tiers, finished off with marble terrazzo. This will be supplemented on gala occasions by a temporary wooden tier at the rear for 150, and will thus together accommodate about 450 persons. There are three shower-baths, two footbaths, also efficient urinal and w.c. accommodation. The apparatus for heating the bath is on the aeration and filtration principle, thus avoiding the emptying and refilling of the bath with water, the same water being used over and over again. The needful supply of steam is obtained from the electric pump station, which supplies the bath, so aiding in the economy of working. A small laundry is provided to deal with the cleansing of towels, etc. The cost of this bath is £8,900 (price per foot cube, 6½d.), and the work has been executed by the Council's workmen under the supervision of the author, from designs prepared under the supervision of the late borough engineer.

(g) Plans for a further extension to this bath, comprising slipper-baths and vapour-baths, have been approved, the plans for this work having been prepared under the supervision of the author; also similar plans for a new fire-station with firemen's dwellings.

On this same site there are erected electric-power station, tramway-sheds and offices, from designs prepared under the supervision of the late borough engineer, and executed by the Council's workmen under his supervision, at a cost of about £26,021 (approximately, 5½d. per foot cube). The Public Libraries Act is adopted, and by a local Act the corporation is empowered to raise a rate for the maintenance of library purposes. In addition to the central library, the Council has three branch libraries. The Council has purchased 15 acres of land for the erection of artisans' dwellings, and there are now 66 double tenements in Savage-gardens, and 40 double tenements in Brook's-avenue. These are let at 6s. 6d. downstairs and 7s. upstairs, the accommodation provided being a sitting-room or parlour, two bedrooms, living-room, and scullery, with bath and w.c. for each tenement. The present fire-station is situated in Wakefield-street, and is well-equipped for an old station. In addition to the main station, there is a branch night and day station at Manor Park. The present strength of the brigade is—one superintendent, one engineer, nine firemen, two coachmen, total 14 men, and four horses (hired). There is an electric fire alarm system throughout the district. The present number of street-alarm posts is 16. There are also 15 call bells to firemen's and turncocks' houses in close proximity to the station. The equipment of the brigade is as follows:—One steam fire-engine, one manual fire-engine, one hose-drawn escape and hose tender, two hand-drawn escapes, four jumping sheets, six hand-pumps and hose, 3,500ft. of canvas hose, one smoke helmet, eight scaling ladders. Of parks and pleasure grounds there are: The Central Park, with an area of about 25 acres; Beckton Park, with an area of 18 acres; Beekon Park, with an area of 13 acres; Wanstead Flats, with an area of about 96 acres, in so far as within the borough, are situated in the northern portion of the borough, and at the southern extremity of Epping Forest. They are vested in the City of London Corporation, and are under Corporation control by arrangement. North Woodland Gardens have an area of about 8½ acres. Barking road, Greatfield Estate, Little Bford, and Viarage lane Grounds (a total area of about 26 acres) are laid out as playing fields for children. The foregoing parks and playing fields provide an area of 180½ acres of open space within the borough, to a population of, approximately,

* From a paper read, June 15, at a meeting of the Institution of Municipal and County Engineers.

and flows by a circuitous route over four weirs, to a pipe discharging into the main effluent drain. The object of the humus basin is to allow any suspended matter in the filtered effluent to settle, and at the same time to aerate same as much as possible. The main effluent drain, 4ft. in diameter, discharges into the tidal River Roding, at low-water level. The sludge, about 1,500 tons weekly, from the precipitation tanks is swept out by means of squeegees through 12in. valves into a sludge conduit, and thence to a pump-well, whence it is pumped by two horizontal direct-acting pumps into a timber trough, along which it flows at a gradient of 1 in 90 to a lagoon, formed with banks of house refuse on the marsh.

Refuse Destructor.—The refuse destructor is the "Simplex" front-feed destructor type. Forced draught (hot air) is supplied from two regenerators, each of 264 tubes, and 1,100 square feet of heating surface. The grate area of each unit is 89 square feet. Attached to one unit is a Lancashire boiler, 30ft. long by 4ft. 6in. diameter, with 1,100 square feet of heating surface. To the second unit is attached a Babcock and Wilcox water-tube boiler, 2,255 square feet of heating surface. An auxiliary grate is fitted to the Babcock and Wilcox boiler, thus enabling coal to be burned if the refuse is very wet or too poor in quality to generate the steam required for the works. The units are worked alternately, one working whilst the other is being cleaned, thus giving a continuous working of 168 hours per week. The weight of refuse daily destroyed is from 50 to 60 tons, the average weight of the refuse in summer being 6cwt. per cubic yard, and in winter 9cwt. per cubic yard. The present chimney-shaft is 100ft. high, and a new one is being erected 8ft. internal diameter and 150ft. high.

CAPITAL COST OF WORKS.

Tanks and original buildings	£21,000
Alterations to same	2,000
Destructor, two units of three cells each, boiler plant, approach roads, and foundation work	12,500
Outfall to River Roding	5,000
Filters, a/cres/ complete	7,000
New manure pit, deep well, screening gear, &c.	12,100
Humus basin and contact bed	4,000

Annual working cost £6,575, made up as follows:—

	Whereof for			
Totals.	Destruc- tor.	Pump- ing.	Sewage Fur- nisha-	
Wages	£1,500	£1,000	£1,141	
Carriage	300	250	50	
Buildings & plant materials and re- pairs	400	150	150	
Coal and coke	400	—	300	100
Sewage pre- cipitants	1,250	—	—	1,250
Stores	300	70	150	50
Rates, taxes, and insurance	230	100	5	70
Roads & fencing	125	60	50	60
Contingencies	350	100	100	150
	£6,575	£2,227	£1,707	£3,041

Equivalent to rate burden per £ of rateable value, approx.	3.42d.	1.08d.	0.84d.	1.48d.
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Lighting.—The borough is lit both by gas and electricity. The main thoroughfares are lit with arc-lamps, and the side streets by electric glow-lamps and with incandescent gas-lamps. The gas-lamps are fitted with incandescent mantles, burning 21, 31, 4, and 41 hours respectively. The current is supplied from the council's electric generating station. Lighting, extinguishing, cleaning, repairs, and maintenance both of gas and electric lamps are undertaken by the council's workmen. The wages of lamp-lighters are 26s. per week and uniform.

Dust Collection.—Is carried out under the officials. The corporation owns the dust-vans, and employs the dustmen direct, but the horse and driver are contracted for. Collection is made once a week, the whole being carried to the refuse destructor. The number of men regularly employed in the engineer's department is about 350, this number including those engaged on scavenging, sewer work, street works, parks, sewage works, and workshops. Each man is allowed Bank

holidays, with pay, and one day annual holiday for each two months' completed service, such holiday not to exceed one week. After 12 months' service each workman is allowed two weeks' full and two weeks' half pay in any one 12 months. The average working hours are 48 per week, with a minimum wage of 30s. per week for a man 21 years of age.

The author desires to acknowledge the very able and willing assistance rendered by his deputy, Mr. Baker; the chief assistant, Mr. Brook; and the engineering assistant, Mr. Bridgewater; together with the general staff of the department in the carrying out of the various undertakings of the corporation.

THE DISCUSSION.

Mr. Willis (Chiswick) proposed a vote of thanks to the author of the paper, and congratulated the authorities of an extra metropolitan borough of such rapid expansion with the lowliness of the general district rate, 3s. 8d., which, considering the existing conditions, cannot be considered as anything but amazing, stating that by a special Act they could exact a 11d. library rate, he would like to know if they really wanted the amount, also the cost of administration for fire protection of the district, and was not mechanical better than horse traction? Then, unless there was something special not mentioned in the paper, the cost of the open-air bath appeared high; and what was the flow of sewage per head per day? (Ans.: 26 to 27 gallons.)

Mr. Reginald Brown (Southall Norwood), seconding the vote of thanks, asked what means were adopted to communicate with the members of the fire brigade. This speaker did not agree with the previous speaker that the cost of the open-air bath was excessive, but would like to know if any action had been taken to provide better inter-communication across the river than the existing ferry. Such means were badly needed by the growing population. (Ans.: It had been considered, but no action taken.)

Mr. Bradley (Tonbridge) pointed out that if the pressure in the mains was sufficient, there might be less need of urgency for the fire brigade. In reply, it was stated that the pressure of the hydrants was sufficient for all ordinary demands (at fires). He would like to know how the water in the open-air bath was changed.

Mr. James (Grays) asked for various details of costs.

Mr. Essex Layton thought (i.e. fire-protection) water motor was better than horse traction. He asked if the back roads and yards drained into the surface water sewers. (Ans.: No, because, if so, slops, etc., which ought to go into the other sewer, went wrong. In reply, it was stated that the separate system was completed only for side streets, and not in the main streets, so that it could not be logically held that the separate system prevailed.)

Mr. Cubitt pointed out that it was necessary to look well ahead in fire prevention. Under the L.C.C. all big buildings were subdivided, and this ought to be the case everywhere.

Mr. Jones (Ealing) referred to his concern in nearly thirty years ago, with Mr. Savage, in the design of the sewage works. These works are in use still; gave satisfactory results for sixteen years, and then had to be extended because of the huge increase in population.

The President put the vote—which was carried with great applause—when Mr. Birch thanked the members for the vote of appreciation and gave the answers to various questions, most of which are indicated above. Of the others—as to the cost of the open-air bath, it was contemplated at one time to put on a roof, and provision was made for this object. As regards fire prevention, the horses were housed close by, and electric call-bells installed so that the men of the brigade could be summoned at a moment's notice. The time between a sign of alarm and the start of the brigade was only two minutes.

Then the members visited the hospital, sewage works, and open-air swimming baths, returning to the town-hall to tea, kindly provided by Mr. Birch.

THE LONDON COUNTY COUNCIL.

The London County Council met again on Tuesday, after the Whit-sundae recess, when a heavy agenda was dealt with. In consequence of the complaints made as to the slow rate at which the work on the County Hall was progressing, the Estimates Committee have considered what can be done to expedite the completion of the building. They report that the two governing factors at the present time are the dates of the delivery of drawings of the sub-structure by the selected architect, Mr. Ralph Knott, and the date of completion of the sub-structure of the central section. On the assumption that Mr. Knott will deliver the drawings of the central section at the beginning of July, and those of the southern and northern sections at the end of August, it is estimated that their examination by the official architect, Mr. W. E. Riley, the preparation of the quantities and the estimate, the invitation to firms to tender, and the execution of the necessary contract, will take, approximately, until the date of the completion of the central section of the sub-structure, namely, April 12, 1913. Should it be found that the period required for the examination of drawings, the taking out of quantities, and the like, can be shortened, special steps can be taken to complete the sub-structure at an earlier date. As to the erection of the superstructure, the Committee suggested that alternative tenders should be invited, say for three or two years, with a bonus for each week saved on the contract time. If the carrying out of the scheme be expedited in the manner suggested, the Committee foresaw without hope that the revised dates which have been submitted might be improved upon. On present calculations, the sections should be completed by the following dates:—Central section, April 12, 1914; southern section, March 15, 1916; and northern section, June 12, 1915. The Committee also corrected the supposition that some restriction had been imposed on the expenditure of money required for the new County Hall. On the contrary, they reported money had been voted as quickly as possible in order that the work may be pushed on with all despatch.

On the recommendation of the General Purposes Committee, the resignation of Sir Maurice Fitzmaurice, M.C., of the position of chief engineer of the Council and county surveyor for London, was accepted as from the end of the present year. It was reported that the resignation was proffered in order that Sir Maurice might commence private practice. He has held the position of chief engineer since January 1, 1902, and has been responsible for, among other work, the construction of the Rotherhithe and Greenwich tunnels, and the embankment at the new County Hall, and extension works of main sewerage, including the intercepting sewer now being carried from the west to the east of the Metropolis. The chairman, Mr. Cyril Jackson, and Sir John Benn, spoke in high terms of appreciation of the services rendered to the Council and to London by Sir Maurice.

The estimates of the Housing of the Working Classes Committee amounted to £222,000 on capital account, but £20,000 of this will be met out of the Acquisition of Lands Fund. For the clearance of insanitary areas, £100,000 has been included, most of which will be incurred on the Tuford street scheme. The Maintenance Estimates showed that the net rent receivable in respect of the Council's houses, including the demolition of £294,335, as compared with the estimate of £155,083 for 1911-12. After paying all charges on capital there is an estimated surplus of £4463. The Committee also submitted their accounts for the past year, from which it appeared that, considering the whole of the dwellings erected by the Council, there was a surplus for the year, the debt of the Council of £8,382, as compared with £4,428 in the previous year. The total financial results on all dwellings and estates from the date of the opening of the first block in April, 1894, to March, 1912, was that £115,131 had been temporarily defrayed out of the rates, and £1,054 contributed from the tramways

CURRENTS CALAMO.

When low tender tenders lead to litigation whose fault is it? We are not going to attempt to answer the question. Readers must do that for themselves, after reading the report of *Munn v. the Lambeth Borough Council* in our "Legal Intelligence" on another page. We give a very full report because, on this page, in our issues of October 6 and 13 last year, we had occasion to comment on the extraordinary difference between the amounts of the tenders submitted for this job. There were no less than forty of them, and the figures ranged from £616 12s. 6d. down to £105 1s. 6d., the latter amount being that of the tender of the plaintiff, which was accepted. There was a definite specification as to the paint to be used, and the Council had its own clerk of works to see the work was done properly. The differences seemed so extraordinary that we invited information from the Town Clerk on the one hand and from the senders of the highest and lowest tenders on the other as to any possible reasons for the wide divergence.

Of the several tenders, Mr. Munn was the only one who replied, and we gave the gist of his letter on p. 507 in our issue of October 13. We agreed entirely with the last sentence in his letter, which we quoted, and we pointed out that while such tendering remained unexplained had results to the public must follow, and that therefore it was the duty of all concerned to watch the matter very carefully. It will be noted in the report that Mr. Munn has sued the Lambeth Borough Council for £67 15s. 4d. for extra wages paid, and damages sustained by him owing to delay and other small items. As regards the delay, the jury gave Mr. Munn a verdict, but confessed inability to say what was due to him on that account. This, the judge said, was a verdict for the plaintiff on that one point, and he referred the decision of the amount to the Registrar, on a *quantum meruit*.

Very frankly, we do not see that much good is likely to come of the "Experimental Town Planning School," which is to be held, so we are informed, at the Hampton Garden Suburb during the first fortnight in August, at which "professional men will, without interference with their ordinary work, attend short courses of lectures and practical demonstrations of town planning." Is this part of the "influential support" we are told by some of the daily papers is now being given to the "scheme" for establishing a Chair of Town Planning at the University of London, or is it really expected that architects will have a few days out about the next Bank Holiday time at "Appy Amnestad?"

The French Chancellor of the Exchequer is proposing a prohibitive and proper tax on the poster advertisements which disfigure the landscape along the railway lines. At present these atrocities only pay a small fixed tax of from one to two francs each; but in future, if Mr. Kloiz's Bill passes, £15 per square yard of advertisement will be levied annually. Nor is this all. The land-tax is to be increased to the owner by the amount of profit he makes on the space let. We trust some future Chancellor of the Exchequer will follow suit here, and tax

hooligans in the great thoroughfares as well. Things are not so bad, perhaps, with us as in France or America; but the evil is growing, and it is time something was done to check it.

As far as London is concerned the London County Council is taking action under the Advertisements Regulations Act of 1907, and its Local Government Committee have scheduled, after inspection, 108 public gardens in various parts of London, all the parks and open spaces, and most of the squares and playgrounds under the management of the Council, the Royal parks, cemeteries, churchyards, and burial grounds open to the public, for the purpose of applying a series of new by-laws. One of these provides that no advertisement or hoarding shall be erected within forty yards from any of these places so that it can be seen by any person in them. The object of this new by-law is that the views from the public open spaces shall not be spoiled by advertisements. It is also provided that no illuminated or other advertisement erected within sight of these pleasure grounds shall be exhibited more than 20ft. from the ground. Foremost in the places where advertisements and hoardings are to be barred are Trafalgar Square and Parliament square. The second schedule deals with views from various parks, and is designed to prohibit large advertisements "exhibited more or less near to the point of view." We trust the new regulations will be rigidly applied.

Londoners, please! They say the Paris-
every man of mark is as afraid of having his
statue set up as a good personal friend of
George the Third was of the "S—" to his
name, when his Majesty used laughingly
threaten to knight him. Anyhow, Voltaire
has four, Dubut one, Alfred de Musset
three, Jean de Arc four, and Lamartine two.
The Prefecture of Paris has just had a return
prepared with a view to the elimination of
redundant places. Thirty-three subscription-
lists recently opened for as many more
statues in Paris to the illustrious dead seem
to have rather frightened the Prefecture. We
have very few duplicates in London, but we
have some statues which, on all reasonable
principles, ought to be re-cast or re-chiselled
from time to time, to suit popular taste, just
as celebrities were remoulded in Mrs.
Jarvis's waxworks exhibition.

In Paris the vicissitudes of some of the statues have been many. We know for certain that three different statues of Napoleon have adorned the Vendôme column. The first was the work of the sculptor Chaudron, and represented Napoleon as a Roman Emperor. This statue made way for one executed by Sirey, representing the Little Corporal in uniform, with the familiar three-cornered hat. Sirey's statue was thrown into the Seine by the Revoltists in 1871, and was afterwards replaced by the present statue, in which Napoleon appears once more in the garb of a Caesar. Although thrown into the Seine, Sirey's statue was recovered, and has lately been placed in the Invalides. M. Robert Bonard, the historian, however, declares that the statue is not quite the same as the original. It seems that when fished out of the bed of the river it was so much injured that a new head was necessary. The little three-cornered hat is, therefore, modern and not the handiwork of Sirey.

On some of the Nonsensical fair grounds the stale delights of zigzag railways, great wheels, and the like, are a new place to "The House of Nonsense," which seems to embody a combination of more or less useful object—less an illustrative of the enormities of the jolly builder and the fads of the "garden-city" architect. According to a correspondent of the *Manchester Guardian*, "The House of Nonsense" is a square built house with doors and windows, quite ordinary outside, but most extraordinary inside. As soon as you enter you find that everything is topsy-turvy. The flight of stairs is moving up slowly, but another is coming down and the other half going up, while the builders are leaping about madly from side to side. Walking on what seems to be a Brussels carpet, the floor suddenly goes away beneath your feet, but you are only dropped a few inches. You step on a harmless-looking board, which begins to fly backwards and forwards; you jump off this upon another, which rotates swiftly; then you have to cross an apparently bottomless tank, reach only an inch deep on a tightrope; landed safely on the other side, you find that the only way down to terra firma is by a chute, which fires you on to a mat on the hard floor beyond. Somewhat perturbed by these and other adventures, you sit down on an apparently comfortable seat, which at once drops down and deposits you on the boards. You try a second walk, only to be hurled violently in the air. Seeking the exit, you become my lord in a wooden maze, the only way out being into a ridiculous monkey cage. Retreating. Your steps, a sudden gust of artificial wind blows off your hat. Tired and fairly so, you spy an American soda fountain and order a coal drink, but receive instead an electric shock. Then they let you out.

In the competition of designs for the new University at Calgaire, plans have been received from all parts of Canada and the United States. It is expected that the awards will be announced shortly. The preliminary estimate will be 250,000 dollars.

Under the will of the late Sir Julius Wernier, the National Gallery received as its first example of a picture by Watteau, a miniature 20cm. by 25cm., and is known as "Le Gaze d'Amour." It was engraved by L. P. de Bas, and was exhibited at the Palais Bourbon in 1874.

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R.I.B.A. THE SOANE MEDALLION.

and others in the following competitors for the Soane Medal for the following conditions: 1. No restriction as to the size of the structures, but they should be of reasonable scale. 2. The plans, sections, and elevations to be drawn to 1/16th scale. 3. A section through the front buildings, up to and including the roof heads of the buildings to be drawn to a scale of six feet to an inch. 4. Plans of the upper floors and basement need not be drawn.

THE R.I.B.A. ELECTIONS.

The following are the reports of the annual meetings, showing the votes given in the election of Members of Council for the coming session of the Royal Institute of British Architects. We published the full details of the results last week, p. 878.

The elections of the President, Hon. Secretary, the nine representatives of allied societies, and the representative of the Architectural Association, were unopposed.

Vice-Presidents. Elected Ernest Newton, A.R.A., 675 votes; A. W. S. Cross, 585; E. Guy Foxley, 576; George Hubbard, 558; Walter G. John W. Simpson, 525 votes; Walter G. John, 491.

Members of Council. Elected: H. V. Lanchester, 790 votes; J. S. Gibson, 755; V. Eschbart, 719; E. A. Rickards, 698; Max Clarke, 684; W. A. Forsyth, 668; T. E. Cooper, 651; W. J. Lippard, 644; Wm. Woodward, 641; Wm. Dunn, 634; C. Stanley Peach, 622; Edmund Wimperis, 604; C. B. Quennell, 602; Sydney Parks, 578; W. Henry White, 558; F. R. Farrow, 546; A. W. Brown, 520; S. Perkins-Pick, 509. Not Elected: W. R. Lethaby, 497 votes; Edwin T. Hall, 394; W. Curtis Green, 352; Maurice B. Adams, 324; Arthur Keen, 320; Edward Warren, 316; Sir A. Brummell Thomas, 310; C. C. Brewer, 291; G. H. Fellowes, 286; Sir P. S. W. Nicholson, 279; B. Horke Dunning, 277; Edgar Wood, 252; H. Wiglesworth, 221; Banister F. Fletcher, 184; W. H. Atkins-Bryan, 184; J. B. Mitchell-Wildiers, 161; Robert Evans, 81.

Associate Members of Council. Elected: A. Newell on Wilson, 673 votes; S. Warwick, 642; Alan E. Munby, 549; Edwin Ginn, 536; K. Gummel, 499; R. G. Gussendale, 411. Not Elected: R. Atkinson, 386 votes; Hugh L. Solomon, 354; H. Long Triggs, 262; W. H. Ward, 234; Stanley Hamp, 258; C. Wether Smith, 214; G. L. Elkington, 156; E. R. Harris, 106.

For the election of Fellows, 1,001 papers were returned, of which 21 were invalid; and for Associates 1,001, 35 being invalid. Less interest appears to have been taken in the election of members of standing committees, which the demands on their time precluded. It is from publishing in detail 911 recorded votes for the Art Committee, 901 for the Practice Committee, 886 for the Literature Committee, and 884 for the Science.

THE OPERATIONS OF THE NATIONAL TRUST.

Princess Louise, Duchess of Argyll, the President of the National Trust, will take the chair at the annual meeting in Crosby Hall on July 11. The Festival of Plymouth will be among the speakers. At the present time the National Trust is attempting to secure many temporary sites in this country for the use of Sea-parks. The effort to preserve Colley Hill in the Regent, has been successful so far that only £1,000 is now required.

An opportunity has also been offered to the Trust to acquire the site of the Roman Fort of Borra's Field, the level meadow at the foot of Windermere, within three-quarters of a mile of the centre of Ambleside. The fort formed part of a system of roads and fortifications by which the Romans controlled the Lake Country. Borra's Field has lately been used as a building site. The owner of the property has agreed to surrender operations, and has given to the Trust an option of purchase for six months of twenty acres for £1,000, of which sum £3,000 remains to

be raised if this item of Lakeland scenery is to be secured.

The National Trust is also supporting an effort which is being made to preserve a portion of Finchampstead Ridge, which forms part of the Peasewold Estate, near Wokingham College. The road over the Ridge commands one of the finest landscapes in this part of England, overlooking Berkshire, Hampshire, and Surrey. An opportunity of acquiring further land at Mariner's Hill, near Westerham, Kent, has presented itself, the owner having given to the Trust the option of purchasing fourteen acres for £1,500. Towards this sum about £1,000 has already been secured.

Through the generosity of the Fishmongers' Company and a few private individuals, a tract of land on the north coast of Norfolk, known as Blakeney Point, comprising nearly 1,000 acres, has been purchased from the owner and will soon be vested in the Trust.

OBITUARY.

Mr. Henry Joseph Williams, architect, surveyor, and valuer, Bristol, died on the 17th inst. at Prinsington, near that city, aged 70 years. His works include many branches of Lloyds Bank in the West of England, and the Law Union and Rock Insurance Offices in Bristol.

Mr. J. Wright Clarke, who was well known as an author of textbooks on plumbing and sanitary science, and a popular and sound lecturer on these subjects, died on Friday last at his residence in New Wandswoorth. For 25 years Mr. Wright Clarke was connected with Plumbing at the Polytechnic in Regent street.

A housing scheme is to be carried out in the Ryeon district at Coventry on a partnership basis, at an estimated cost of £60,000.

Lord Strathcona, High Commissioner for Canada, has been notified by the Canadian Under-Secretary of State of a remission of duty on Portland cement and hydraulic or water lime from June 12 to October 31.

Mr. Gomer Henry, surveyor to the Garmarthen Rural District Council, has been appointed surveyor for the eastern division of Carmarthenshire, at a salary of £200 per annum, with £50 additional for travelling expenses.

At the last meeting of the A.A. Excursion Committee it was decided to visit Shropshire this summer, and that the headquarters should be in Shrewsbury. It was also decided to alter the date of the excursion to August 12-17.

The cottage baths recently provided by the Corporation of Birmingham have proved so great a success that it has been decided to extend the system. Plans for fresh sets of baths of this class to be constructed in Darlmouthstreet and in Coventry-street were adopted on Monday.

The Hertfordshire wing of the Sea Training Homes for poor boys at Liscard was opened by the Marchioness of Salisbury on the 12th inst. The contractor for the work was Mr. T. G. Huxley of Selby-street, Liverpool. The wing is equipped and self-contained building erected on similar lines to the original block. It contains classrooms, a recreation room, and a dormitory with accommodation for 126 boys.

At Slough, on Wednesday week, the Bishop of Oxford dedicated the enlarged nave of the parish church, after having dedicated the new organ the previous evening. Thirtysix years ago the chancel and transepts were rebuilt at a cost of £12,500, and the nave and west front have now been completed, necessitating the erection of a new organ erected at a cost of £1,350, and the electric light installed. The tower and spire have now to be built at a cost of £5,000. The total outlay on the present scheme has been £14,850.

Sir Thomas Hunter, town clerk of Edinburgh, presided at Glasgow on Tuesday over the Scottish National Conference on the administration of the Housing and Town Planning Act. Sir George McGee, of the Local Government Board, in an opening address, expressed his interest in the problem of town planning in Scotland. He was of opinion that there was an association between the present housing conditions and labour unrest, and that that was a matter in which the Government might give them more financial aid.

COMPETITIONS.

A.A. COMPETITIONS, 1912.—The following is the list of awards by the President and Council for last season's work: A.A. Silver Medal and prize value ten guineas, R. M. Pigott, of Wandswoorth, Design for the treatment of the head of "The Serpentine, Kensington Gardens, and the A.A. Travelling Studentship; Design for a Memorial Bridge to King Edward VII. Not awarded. A.A. Travelling Studentship, Second Prize, value £5, B. W. Riddle, Banister Fletcher Bursary, value Twenty-five Guineas, V. O. Rees, Architectural Union Company's Prize, measured drawings, value £20, W. J. Palmer Bates, Herbert Bates Prize, for the best drawing in the Sketch Book for 1911, value Five Guineas, W. S. George. Essay Prize: Award not yet made.

ANTLEY BRIDGE, BOLTON.—In the competition for parochial hall, men and women's institute, gymnasium, etc., Mr. John Bennett, Lieut. R.I.B.A., of Bolton, has made the following awards. First, Messrs. Marshall R. Simpson, Son, and Wheeler; second, Messrs. Henderson and Brown; third, Mr. Frank Freeman.

CHELSEA. We gave a leading article on the 7th inst. in connection with the exhibition of designs for mural paintings and for the decoration of schools and other institutions, held at Crosby Hall, Chelsea. The committee announce the following competition results:—Scheme for the Gallery of Modern Art, Dublin: Messrs. Walter Bayes, F. Cayley Robinson, James Mark Wilcox, Middlesex Hospital Decoration: A prize of £100 is awarded to Mr. Donald Macdonald Commercial-street L.C.C. School Scheme: Miss Louise Jacobs. Decorations for Cable-street L.C.C. School: Mr. Stanley H. North. Design for School Banners: Award equally divided between Miss Gwynedd M. Hudson and Miss Eleanor Pallett. The results of other competitions will be announced shortly. The exhibition will close to-morrow (Saturday) evening.

HASTINGS.—The assessor appointed to adjudicate upon the 25 sets of plans sent in to the Hastings Corporation for the proposed sunk bandstand and colonnade at Warrior square, has made his award as follows: First, Mr. Philip Tree, architect of St. Leonards; second, Mr. Boucher, of London; and the plans of Mr. Hicks, of Bexhill, and Mr. Henry Ward, of Hastings, commended.

PORT OF LONDON AUTHORITY'S OFFICES. The designs now being prepared by the six selected competitors for the new offices of the Port of London Authority, are to be sent in by Monday week July 1, and from these the final designs will be selected. Originally, as we have already stated, 170 designs were submitted in the preliminary competitions, and from amongst these the assessor selected half-a-dozen, sent in by the following architects: Mr. Robert Atkinson, A.R.B.A.; Messrs. J. A. Beadon, J. C. Wallis, Mr. Edwin Cooper F.R.I.B.A., Messrs. Lanchester, Rickards, F.R.I.B.A.; Mr. J. Reginald Truelove; Mr. Ernest W. Wray, who will receive an honorarium of two hundred guineas each. The site for the offices is the area comprised within Seething-lane, Crutched Friars, and Trinity-square, E.C.

There was inaugurated at Naples, on Sunday, a monument erected at the expense of the Italian Ministry of Education, in honor of the philosopher, the philanthropist and pioneer of free popular education in Naples. The memorial consists of a marble bust, by Professor Fritz Gerth, with a bronze tablet containing an inscription, composed by Signor de Mattinis.

Sir A. Boscawen's Bill, to provide for the better application and enforcement of the Housing of the Working Classes Acts, passed through Standing Committee of the House of Commons on Tuesday. Further amendments were discussed dealing with the question of compensation to owners of slum property, and also giving to an inhabitant householder in a rural district the right to make a direct representation to the Local Government Board where, for any reason, he was unable to obtain housing accommodation.

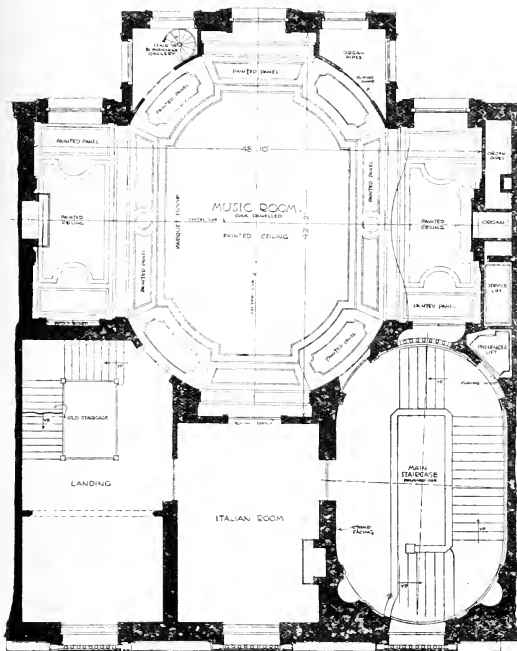
See also references for Chelonia mydas 671, 693, 694.

Our Illustrations.

SIR EDGAR SPEYER'S HOUSE. GROSVENOR STREET, S.W.

This elevational drawing is hung in a central position on the western end wall of the Architectural Gallery at the Royal Academy. As will be seen from the accompanying plan of the first floor, the internal contrivance of the mansion is of a palatial kind, in harmony

cladding the basement. The building through out is of fireproof construction, the floors and roof being of reinforced concrete and steel, and the interior walls of fireproof material. The premises above the ground floor are entirely supported on girders spanning the building. Therefore the ground floor admits of an unobstructed showroom, occupied by the Daimler Company, Ltd. The rear portion of the basement floor is also occupied by this motor company. The cars enter the building at this level and are served to the showroom



FIRST FLOOR PLAN

DETMAR BLOW,
FERNAND BILLEY,
ARCHT.

SIR EDGAR SPEYER'S HOUSE. GROSVENOR STREET, S.W.

with the exterior, which is carried out in masonry. The music-room forms the chief feature on this level, which has a range of pedimented windows facing the street. Messrs. Detmar Blow and Fernand Billey, of Westminster, are the architects.

DETAIL OF DESIGN FOR STOCKPORT POLICE BUILDINGS.

This drawing was submitted in the competition for the above. It explains the type of designs submitted for the subject, and is exhibited in this year's Royal Academy. The architect is Mr. Edwin Cooper, F.R.I.B.A., of Gray's Inn square, W.C.

DAIMLER HOUSE. BIRMINGHAM.

The building, of which Mr. A. Gilbey Latham is the architect, has been erected for the Paradise-street Properties, Ltd., and is situated on a prominent site near the centre of Birmingham. The front elevation, which is carried out in Portland stone, is 40ft. wide, and consists of seven floors, in-

cluding the basement. The building through out is of fireproof construction, the floors and roof being of reinforced concrete and steel, and the interior walls of fireproof material. The premises above the ground floor are entirely supported on girders spanning the building. Therefore the ground floor admits of an unobstructed showroom, occupied by the Daimler Company, Ltd. The rear portion of the basement floor is also occupied by this motor company. The cars enter the building at this level and are served to the showroom

NEW CHURCH, PARK WALK, CHELSEA.

This new church will shortly be erected on the site of the present Park Chapel. Plans were originally prepared some thirteen years ago, but the scheme collapsed through lack of funds. Owing, however, to the munificence of a private donor, for many years resident in the neighbourhood, who has undertaken to bear the entire cost, the project has again taken shape, and drawings for a church to hold 700 people, as shown in our illustration, have been prepared. The nave and aisles, divided into four bays, are arranged in the usual manner; the organ chamber and ample vestry accommodation are provided on the north side of the chancel, while a small



DAIMLER HOUSE, BIRMINGHAM.

chancel aisle on the south side maintains the communication between the south aisle and east end of the chancel. Ingress and egress are provided for by four entrances at the N.E., S.E., N.W., and S.W. corners of the church respectively, the last named entrance being through the tower. The walls will be faced both externally and internally with red brick, Doubling stone being used for the spire, windows, quoins, buttresses, weathers, copings and other external features, while Corngrit Bath stone will form the piers of the nave arcade. The nave and chancel roofs will be covered with red tiles, and those of the aisles with green slates. The rough timbers of the roof will be in Baltic fir and the wrought timbers, bonding, ribs, cornices, etc., in Oregon pine. The floor of the nave will be laid with wood blocks, those of the tower and porch with tiles, and that of the chancel with mosaic. The building is to be electrically lighted and warmed by a system of low-pressure hot-water radiators. The architects are Sir Arthur Blomfield and Sons.

FACADE FOR A BRANCH INSURANCE OFFICE.

[For the Assessor's award in this BUILDING News Designing Club competition, see page 870.]

At Moseley, Centre Cork, a new church, Romanesque in character, has been built from plans by Mr. S. F. Hyde, F.R.I.B.A., South Mall, Cork, and was opened last week. The builder is Mr. John Coffey, of Mullion, Con.

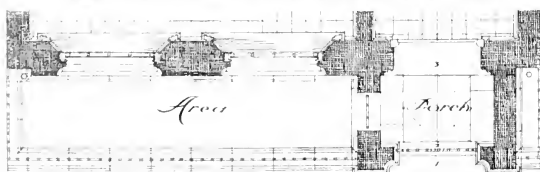
A course of vacation study which is somewhat out of the ordinary has been arranged for the students of the engineering department at the Manchester University. About twenty students of all years and two members of the staff are setting out on a surveying expedition in Derbyshire. Castleton will be the camp, and it is proposed to spend two or three weeks over the work.

PLACED FIRST

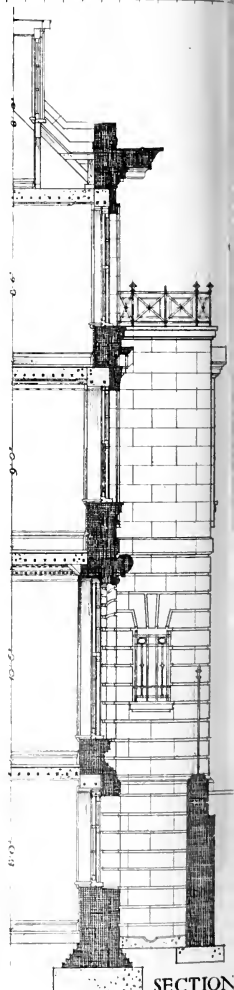
B.N.D.C.

FAÇADE OF A BRANCH
INSURANCE OFFICE

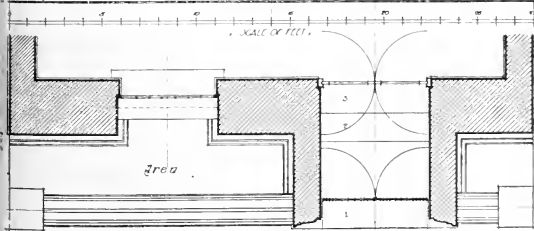
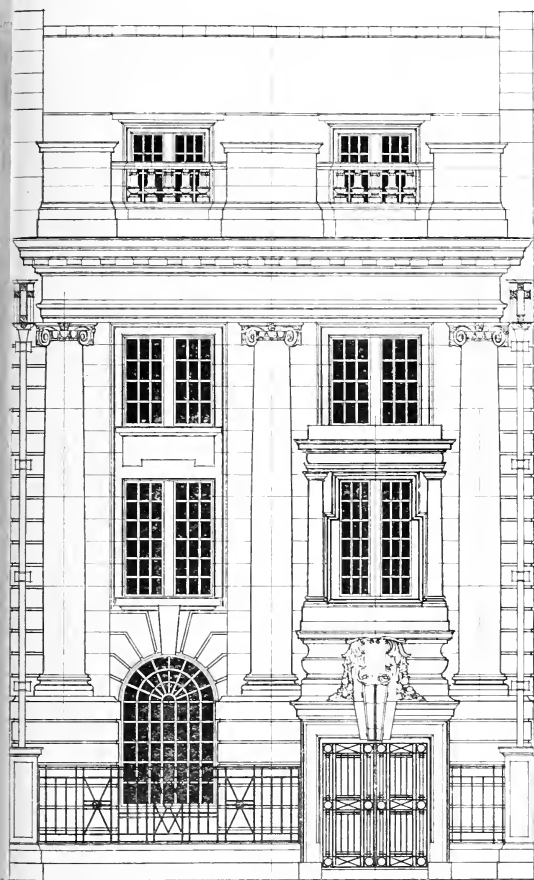
JUNE Design by "FIVE TOWNS"



GROUND FLOOR



SECTION

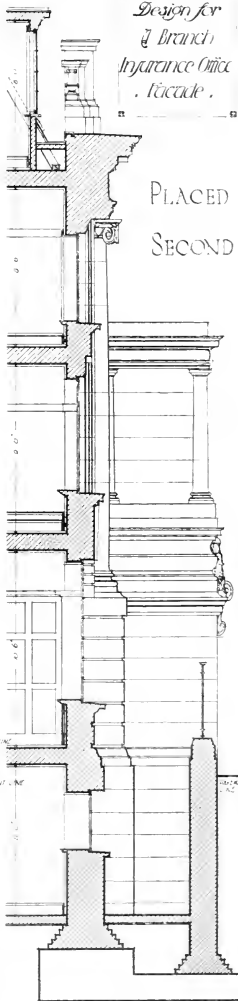


. Plan, at Ground Floor Level .

16" 10" 8" 6" 4" 2" 1"

*Bauhaus New
Designing Club*

*Design for
a Branch
Insurance Office
Facade .*



PLACED
SECOND

. section .

PARLIAMENTARY NOTES

LONDON TRAMWAY EXTENSIONS—The proceedings in Secret Committee of the House of Commons on the London County Council Tramways Bills have now been completed by the unanimous passing of the proposal to extend the existing system of tramways.

Of the eight original schemes, four—those providing for tramways from Wood-lane to Harrow road, in Hampstead road and in Euston road, in Essex road and Stamford-road, and in Farringdon-road and Farringdon-street, and from Finsbury to Finsbury Park, and from Bushey Green, Calford, along the railway road, Southend, a short extension in Dudley street, towards London Bridge, the doubling of the lines under the South Western Railway Co.'s bridge over the Lambeth road, and a short extension in the latter road, in Van Ness, have been passed.

HOUSING CONDITIONS AT DARTFORD.—Mr. Rowlands recently inquired of the President of the Local Government Board as to what steps are being taken to deal with the housing conditions in some of the towns in the district. He also inquired as to the sanitary arrangements and water supply in the rural district of Dartford. In his reply, Mr. John Burns stated that he is in communication with the local authorities in the district, and has asked them to furnish him with more complete information than was contained in the report of the medical officer of health, and on receipt of this he will consider the matter. He stated that the rural district of Dartford is within the limits of supply of the Metropolitan Water Board, and part of the district is supplied by the Mole Kent Water Co., and that the rural district has only a few houses without a piped service.

QUEST OF THE DELHI SITE. Mr. Wedgwood asked the Under-Secretary for India on Tuesday whether the suggested change in the exact site of the capital at Delhi would upset the arrangements made for acquiring the land at pre-Durbar prices, or whether the site now proposed was entirely embraced in the 1900 Act, and would be affected by the original proposals.

MI. Montana. According to the information before the Secretary of State, the area now being considered for the purpose of the site of a new capital forms part of the lands which are to be returned immediately after the announcement at the Coronation Durbar for acquisition under the Land Acquisition Act. In his Budget speech on March 25 the Viceroy said that the cost of acquiring a space of 30 square miles embracing this site would not be more than Rs. 60,000 or £235,000.

PRESERVATION OF ANCIENT MONU-

THE—The preservation of ancient monuments was considered on Wednesday by the joint committee of the House of Parliament, and the following resolutions were adopted. It had been referred the three Bills on the subject introduced in the House of Lords, Mr. W. Peers, speaker of Ancient Monuments for the Office of Works, and the Secretary of State for Education, and they were given a great necessity for legislation in regard to the preservation of our buildings and monuments. At present State had absolutely no power to interfere in the case of buildings or monuments which were removed or destroyed, or allowed to suffer through neglect. The Government's Ancient Monuments Consolidation and Amendment Bill was introduced, the object of which was to give the State power after consultation with the local authorities. Buildings used for religious purposes were definitely excluded, and that meant the extremely important monuments of the Middle Ages, the great cathedrals, and the like. As an instance of the necessity there was mentioned one to some of the cathedrals of the country. The Class case was that of Alban, where what was done was in opposition to the law. In the case of the monument and would be a fine to stop it. The intention was to have a list of monuments of the various Advisory Board, which should be reported to the Secretary of State, and the Minister of Education. The H. M. Office of Works, with the executive power must rest, had, during the past year, organised inquiries throughout the country in order to obtain a list of the monuments in the country, and the list had been presented. In reply to the Bishop of Exeter, Mr. Peers stated that there is nothing at present time to prevent Stonehenge from being taken down. Mr. W. Peers stated that the Government in this respect to the preservation of ancient monuments. Mr. Major, secretary of the Earthworks Committee, pointed out the Congress of Archaeological and Prehistoric Societies, and the importance of the earthworks. The Committee adjourned.

L. J. Hackett has been appointed assistant secretary of the Tyrone County Council, in succession to the late Mr. C. H. Wallace.

Our Office Table.

Mr. Arthur Keon, F.R.I.B.A., past president of the Architectural Association, and hon. treasurer of the D. G. Driver Fund, writes, thanking the many subscribers to the fund for the very generous response that they made to his appeal for help for the widow and family of the late secretary to the Association. The total number of contributors was 282. The amount received was £1,000, including contributions from the Architects' Benevolent Fund, the Society of Architects, and the Society of Architects' Lodge of Freemasons, the Institute of Secretaries, and from the Association itself, is £691 19s. Trustees have now been appointed and regular payments will be made during the next few years, after which the disposal of the balance of the fund will be considered. The names of the contributors will be enclosed with the letters received with the contributions sent, show very clearly the goodwill and esteem with which Driver was regarded.

Princess Henry of Battenberg, the Governor of the Isle of Wight, had consented to allow the valuable collection of island antiquities, formerly housed by the Newport Literary Society, to be incorporated with her museum at Carisbrooke Castle. The museum will be confined to objects found in or connected with the Isle of Wight, and all possessors of such objects are invited to entrust them to its safe keeping. A scheme has been drawn up on a chronological basis, whereby separate rooms (or parts of rooms) will be set apart for the parts of the prehistoric period. There will be a Stone Age room, a Bronze Age room, and an Iron Age and Roman room; while the space in the large room containing the priceless Stuart relics will be divided between the Saxon, Mediaeval, and modern specimens. The whole museum will thus unfold the evolution of culture in the island by a logical arrangement of the evidence itself. There already exists at the Castle a number of valuable books and manuscripts relating to the island. These will form the nucleus of a library of which the history of the island from the earliest times. For this purpose a room will be set apart on the top floor, and arrangements have been made for the free admission of serious students.

A meeting of the Town Planning Committee of the Birmingham City Council was held on Monday under the presidency of Councillor Neville Chamberlain. At the close the chairman stated that the committee had now completed their town-planning scheme for East Birmingham. They had adopted the principle of dividing the area into zones, with different building densities. The lowest limit was the same as in Harborne and Quinton—namely, twelve houses to the acre, and the highest limit was eighteen houses to the acre, the latter cases in the area reserved for the city centre. There was also an intermediate zone, which would give fifteen houses to the acre. In all cases the maximum number of houses which could be built on any one area was twenty, the same as in Harborne and Quinton. For the most part the scheme followed very closely the lines of Harborne and Quinton, but there were one or two alterations since the other scheme was completed. They had inserted a clause to keep advertising under the control of the corporation, and a clause enabling the corporation to make railway sidings in factory areas, and to give the use of them to intending manufacturers on such terms as might be thought desirable.

A great amount of interest was manifested locally in the attempt to dispose of the Lurgwardine Encaustic, Emannelled and Art Tile Works by Messrs. Alfred W. Dando and Co., auctioneers, of Dudley, acting on behalf of the proprietors of the works, Messrs. W. H. Godwin and Son, at the Law Institution, Hereford, on Tuesday in last week. The auctioneer said the works were established 30 years ago by Mr. Godwin, and had been carried on uninterruptedly since that time. First class work had been turned out during

[illegible]

Mr. Bridges, surveyor to the Board of Fish and Game, has been in the city for \$30 per annum.

The W. & K. Main Sewerage Board have appointed Mr. A. S. Murray, the assistant engineer, to the post of superintendent.

A Local Government Board Provisional Order affecting the borough of Durlington to increase the borrowing powers from £70,000 to £1,000,000 in respect of water has been passed for final reading in the House of Commons.

In addition has been allowed at Inverkeithing that the Local Government Board for Scotland has agreed authority to the town council to prepare a town planning scheme. The Board said in the agreement that the whole area embraced in the application

Table 8. Committee on Estimates met again on Monday and examined the votes for H.M. 006 on 6 Works. The Committee found that the work may have a useful influence on preparations, use in Supply the evidence as to the way in which the estimates are prepared, as to centres and the work of the department being valuable.

[illegible][illegible]

S. L. ... S. ... she has ... signed ...
 ... the North of England ...
 ... The party which ...
 ... Professor ...
 ... Mr. Walker of Edin-
 ... Dr. Burns of Edinburgh ...
 ... Mr. T. Ross ...
 ... W. R. M. Donald and the Rev. H. J.
 ... On Friday they ...
 ... where they saw the ...
 ... N. ... N. ... under the

the whole of the time. They were admirably equipped works, were close to the railway line, and a siding ran right into the works. Practically the whole of the motive power was included in the sale, but the stock could be taken at a valuation if desired. He was there with liberal instructions, and felt perfectly satisfied that if there was anyone present who required the works, the amount of the reserve was such that they would have no difficulty in rising to the price. No offer was made for the works, and the auctioneer announced that anyone desirous of treating privately for the sale could do so with himself or with a Hereford firm of solicitors.

On the invitation of the British Government, the third International Road Congress will be held in London in 1913, in order to continue the studies, begun in Paris in 1908, regarding the construction and maintenance of roads in view of modern methods of locomotion. The Congress, at which the Governments of the different States have been invited to be officially represented, will open on June 23, and will last six days. It is organised by the Permanent International Association of Road Congresses, formed in Paris in 1908, and by an Organising Committee formed in the United Kingdom. An exhibition of Road Materials and Machinery will be held at the Royal Horticultural Society's Hall and in adjacent ground during the session of the Congress.

Mr. Frederick Ingle, of the well known firm of Bennett and Ingle, whose death on the 30th ult. was recorded in our issue of the 7th inst., left estate of the gross value of £160,149 19s. 6d., with net personality £149,176 7s. 3d. He has bequeathed £350 to charities in London, Nottingham, and Leicestershire, and sums varying from £50 to £1,250 to his workmen. The last named sum and the option of the purchase at 30 per cent. less than the figure at which they appear in his books, of all or any of his business effects, plant, or stock-in-trade, etc., is left to his executor and London manager, Mr. G. Neat. The widow of his foreman, William Freeman, receives £100. He has also bequeathed £100 to Rose King, daughter of his late housekeeper, and £200 and furniture and linen to his housekeeper, Edith Emma Smith. Mr. Ingle seems generously to have remembered in his will almost every possible relative; some sixty are named. He has directed his executor to advertise some of these bequests in *the Standard*, *the Times*, and the *United States*, and has stipulated that any legacy not claimed within twelve months is to revert to his residuary estate.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Conference on Standardisation of Road Materials, under auspices of the Engineering Standards Committee.

SATURDAY (To-morrow).—Society of Architects, Students' Section, sketching visit to Morden College, Blackheath. To meet at the College, 3 p.m.

MONDAY.—Royal Institute of British Architects, Presentation of the Royal Gold Medal. 8.30 p.m.

Mr. V. J. Grose, district surveyor for Barnstaple, has resigned his appointment owing to failing health.

The Bath Surveying Committee, at a meeting held at the Guildhall, Bath, on Monday, decided to recommend the city council to obtain tenders for the Orange-grove improvement, including the retaining-wall, the total estimated cost being £1,500, and that application be made to the Local Government Board for sanction to borrow the sum.

The City Corporation have completed arrangements with the District Railway Company for the connection of the Mansion House Railway Station with the sewerage which is to be driven under Cannon-street from the station to a point opposite Bow-lane. The agreement provides for an opening into the public subway of the station premises, the construction of a public staircase at the corner of St. Victoria-street, upon the site of the present booking office, beneath the footway in Garrick-build. The estimated cost of the work is £16,000, and the Street Committee of the Corporation is to start immediately with construction.

Trade News.

WAGES MOVEMENTS.

EMPLOYMENT IN MAY. The monthly report of the Labour Department states that employment continued to improve during May, and by the end of the month was as good, on the whole, as before the national strike. In the 50 trade unions, which had a net membership of 886,499, making returns, 23,207 or 2.7 per cent. were returned as unemployed at the end of May, 1912, compared with 3.5 per cent. at the end of April, 1912, and 2.5 per cent. at the end of May, 1911. Returns from firms employing 453,098 workpeople in the week ended May 25, 1912, showed an increase of 42 per cent. in the amount of wages paid, compared with a month ago, and a 6.6 per cent. compared with a year ago. The changes in rates of wages taking effect in May added 201,000 workpeople, and resulted in a net increase of £7,100 per week. Amongst those whose wages were increased were nearly 14,000 building trade operatives in various districts.

TRADE NOTES.

Messrs. Wm. Potts and Sons, Ltd., clock-makers, Laver, who a short time ago erected the clock and bell in the Shallowford Memorial Tower, Holbeck Gardens, Scarborough, are now erecting clock and bell at the Scarborough College, Scarborough, for the governors. The clock and bell are new clocks of Holy Trinity Church, Carlisle, Cumberland, and Brough Kirk Edward Memorial clock and bell for Kirkby Stephen, Westmorland, for the chairman and committee, also making a new clock and bell for the Joseph Rowntree School trustees, the Crofta Woods, York.

The Council schools, Althreystreet, Manchester, are being supplied with Shorland's warm air ventilating patent Manchester grates by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

The "Bayle" system of ventilation (natural, circulating, Bayle's latest patent "air-pump" ventilators and air-lifts, has been applied to Messrs. Vickers, Ltd., new offices, Burrows-Furness.

The Coaststone Decoration Co. wish us to give notice that, owing to an alteration in the Telephone Service, their number, from only 75, to 8236 City, but they are still at their old address, 77, Mortimer-street, Regent-street W.

The Corporation of Sheffield have resolved to double the tramway line from Tupton Park-road to Manchester-road at an outlay of £10,475, and to renew the track in Nethergreen-road at a cost of £2,300.

The urban district council of Barnoldswick have appointed Mr. W. Ellis as surveyor, and Mr. S. B. Ingham as sanitary inspector and sewage engineer to succeed Mr. W. Bennett, the former surveyor.

At Wednesday's meeting of the London Education Committee, Mr. Alfred Joseph Hall was appointed Principal of the London County School of Photography, and Mr. Littlebury, at a salary of £400 a year, rising to £500.

The death is announced in his sixtieth year of Professor Ernest Acker, architect, of Brussels, and vice-president of the class of Beaux-Arts at the Royal Academy of Belgium, and a member of the Royal Commission on Monuments. He was a professor at the Royal Academy of Brussels, and had received several decorations from the King of the Belgians and the French Government.

Mr. F. O. Stanford, A.M.I.C.E., a Local Government Board Inspector, held a meeting at the Council House, Birmingham on Tuesday in regard to a number of road improvements and other schemes which the city council have in view, and the estimated cost of which aggregates £33,619. The proposals included an application to borrow £3,635 for the widening and improvement of Sand-lane; £6,386 for the widening of Alport Road to 60ft., and Telford-lane to 50ft.; £2,850 for improvements in Brook Vale-road; £10,000 for widening of the canal bridge; £6,250 for constructing a bridge over the River Cle at Fomans-road, Sparkbrook; £514 for paving the approach to Benner's Hill with oak bark; £1,020 for putting down wood-paving in Great Charles-street; £2,440 for substituting granite blocks for macadam in Lander-street; £5,093 for similar work in Arden-road; and £1,127 for the works of sewerage in Woodthorpe-road, King's Heath.

LATEST PRICES.

IRON.					
Steel Joists, Belgium and Germ.	per ton	43	17	6	
Steel Joists, English	per ton	43	17	6	
Wrought Iron Flat Plates	per ton	43	17	6	
Steel Grid Plates	per ton	43	17	6	
Bar Iron, 2001 Steel	per ton	43	17	6	
Do., Low-carbon, Flat, Round, or Square	per ton	43	17	6	
Do., Welsh	per ton	43	17	6	
Roll Plates, Iron	per ton	43	17	6	
South Staffs	per ton	43	17	6	
Best Suedish	per ton	43	17	6	
Cast-iron, 10 in. Tees, 25 per cent. extra	per ton	43	17	6	
Builders' Iron, hoop for roofing, &c., 15 in. & over	per ton	43	17	6	
Galvanised Corrugated Sheet Iron, No. 18 to 20, No. 22 to 24	per ton	43	17	6	
6 in. to 10 in. inclusive	per ton	43	17	6	
Best-cut	per ton	43	17	6	
Wire Nails, Points de Paris—	per ton	43	17	6	
3 to 7	per ton	43	17	6	
8 to 10	per ton	43	17	6	
11 to 12	per ton	43	17	6	
13 to 14	per ton	43	17	6	
15 to 16	per ton	43	17	6	
17 to 18	per ton	43	17	6	
19 to 20	per ton	43	17	6	
21 to 22	per ton	43	17	6	
23 to 24	per ton	43	17	6	
25 to 26	per ton	43	17	6	
27 to 28	per ton	43	17	6	
29 to 30	per ton	43	17	6	
31 to 32	per ton	43	17	6	
33 to 34	per ton	43	17	6	
35 to 36	per ton	43	17	6	
37 to 38	per ton	43	17	6	
39 to 40	per ton	43	17	6	
41 to 42	per ton	43	17	6	
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83 to 84	per ton	43	17	6	
85 to 86	per ton	43	17	6	
87 to 88	per ton	43	17	6	
89 to 90	per ton	43	17	6	
91 to 92	per ton	43	17	6	
93 to 94	per ton	43	17	6	
95 to 96	per ton	43	17	6	
97 to 98	per ton	43	17	6	
99 to 100	per ton	43	17	6	

OTHER METALS.

Spelter, Silesian	per ton	45	7	12	12	6
Lead Water Pipe, Town	per ton	45	7	12	12	6
Lead Sheet, in 24 in. bchs	per ton	45	7	12	12	6
Lead Barred Pipe, Town	per ton	45	7	12	12	6
Lead Pipe, 1 in. Country	per ton	45	7	12	12	6
Lead Pipe, Tinned inside and outside	per ton	45	7	12	12	6
Composition Gas Pipe, Town	per ton	45	7	12	12	6
Lead Soil pipe (up to 4 in.) Town	per ton	45	7	12	12	6
Over 4 in. 41 per cent. extra	per ton	45	7	12	12	6
Lead Sheet, in 24 in. bchs	per ton	45	7	12	12	6
Copper Sheets, sheathing & roof	per ton	45	7	12	12	6
Copper, British Cast and Ingot	per ton	45	7	12	12	6
Do., Australian	per ton	45	7	12	12	6
Do., Bars	per ton	45	7	12	12	6
Pig Lead, in 100 lbs	per ton	45	7	12	12	6
Sheet Lead, Town	per ton	45	7	12	12	6
Genuine White Lead	per ton	45	7	12	12	6
Refined Red Lead	per ton	45	7	12	12	6
Sheet Zinc	per ton	45	7	12	12	6
Do., against account	per ton	45	7	12	12	6
Tin	per ton	45	7	12	12	6
Cut nails per cwt. basic ordinary brand	per cwt.	11	0	0	0	0

TIMBER.

Per St. Petersburg Standard 100-120 ft. by 1 in. by 1 in.	per 100 ft.	12	0	0	0	0
Yellow Pine Deals, Quebec	per 100 ft.	12	0	0	0	0
" " 2nd	per 100 ft.	12	0	0	0	0
" " 3rd	per 100 ft.	12	0	0	0	0
Spruce Deals, St. Petersburg	per 100 ft.	12	0	0	0	0
" " Miramichi	per 100 ft.	12	0	0	0	0
" " Boards, Swag	per 100 ft.	12	0	0	0	0
Red Deals, Archangel quality	per 100 ft.	12	0	0	0	0
" " 2nd	per 100 ft.	12	0	0	0	0
" " 3rd	per 100 ft.	12	0	0	0	0
" " St. Petersburg	per 100 ft.	12	0	0	0	0
" " 2nd	per 100 ft.	12	0	0	0	0
" " Weyburn & Teaborn	per 100 ft.	12	0	0	0	0
" " Stockholm	per 100 ft.	12	0	0	0	0
White Deals, Crown	per 100 ft.	12	0	0	0	0
" " 2nd	per 100 ft.	12	0	0	0	0
Flouring, White and Planed	per 100 ft.	12	0	0	0	0
1st and 2nd quality mixed	per 100 ft.	12	0	0	0	0
Old Austrian Walnut	per 100 ft.	12	0	0	0	0
Red Planed, 1st quality	per 100 ft.	12	0	0	0	0
Pitch Pine, Prime Deals and	per 100 ft.	12	0	0	0	0
Limnium Vite	per 100 ft.	12	0	0	0	0
Yellow Pine Logs, white board	per 100 ft.	12	0	0	0	0
Pitch Pine Logs	per 100 ft.	12	0	0	0	0
Birch, Quebec Logs	per 100 ft.	12	0	0	0	0
Old Austrian Walnut	per 100 ft.	12	0	0	0	0
Mahogany, Gabon	per 100 ft.	12	0	0	0	0

BUILDINGS—continued.

[illegible]

"I dare do all that may become a $\frac{\text{Tailor}}{\text{man}}$,

“Who dares do more is none.”
 (With due apologies to the Bard of Avon.)

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The "Regent" Evening Suit	6	6 0

The "Regent" Evening Sun	6	6	0
Summit Sun	5	5	0

Country Suits - - - - 3 3 0

Town Lounge Suits - - 3 15 0

Semi-Riding Breeches	-	-	1	1	0
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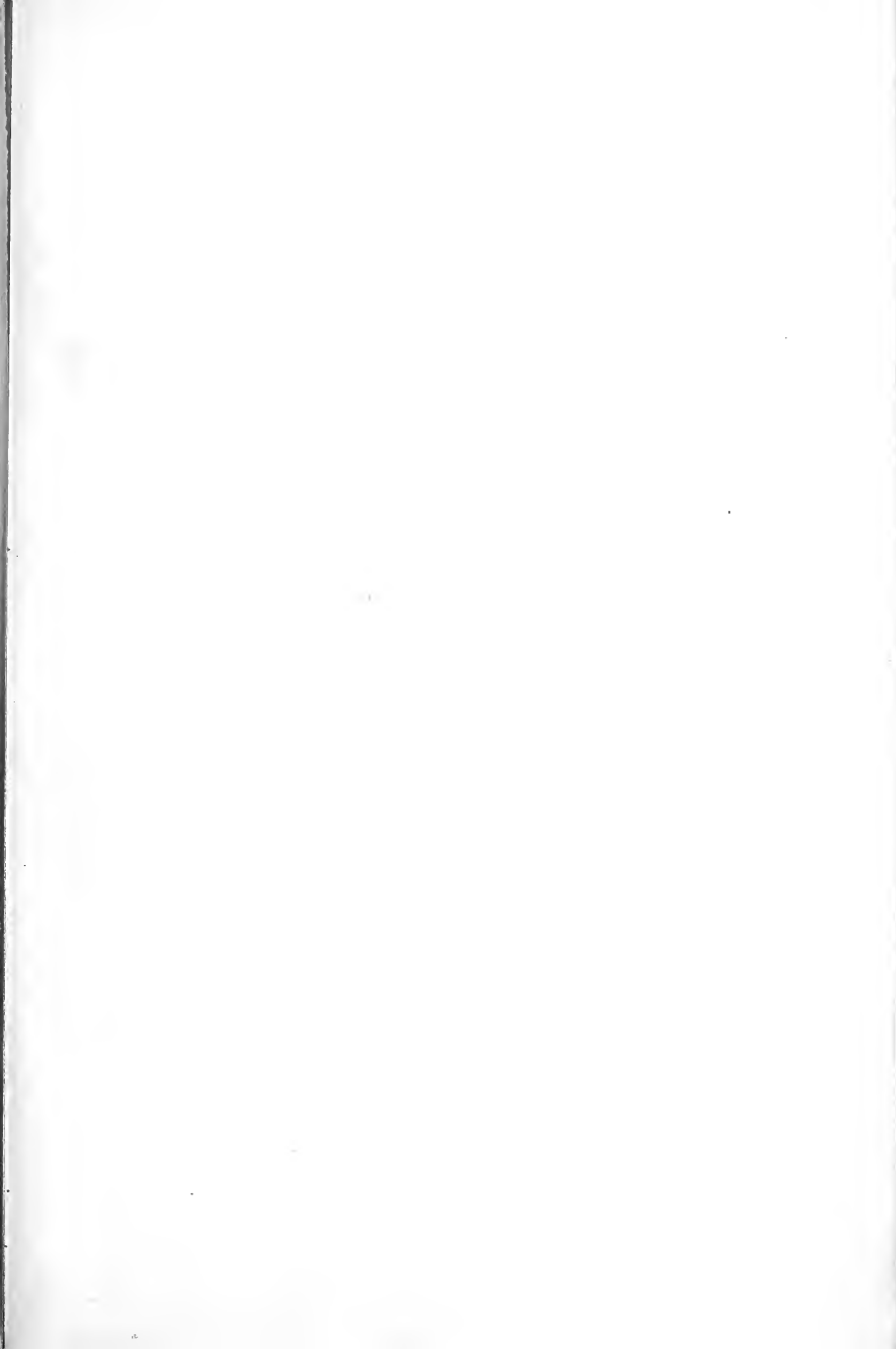
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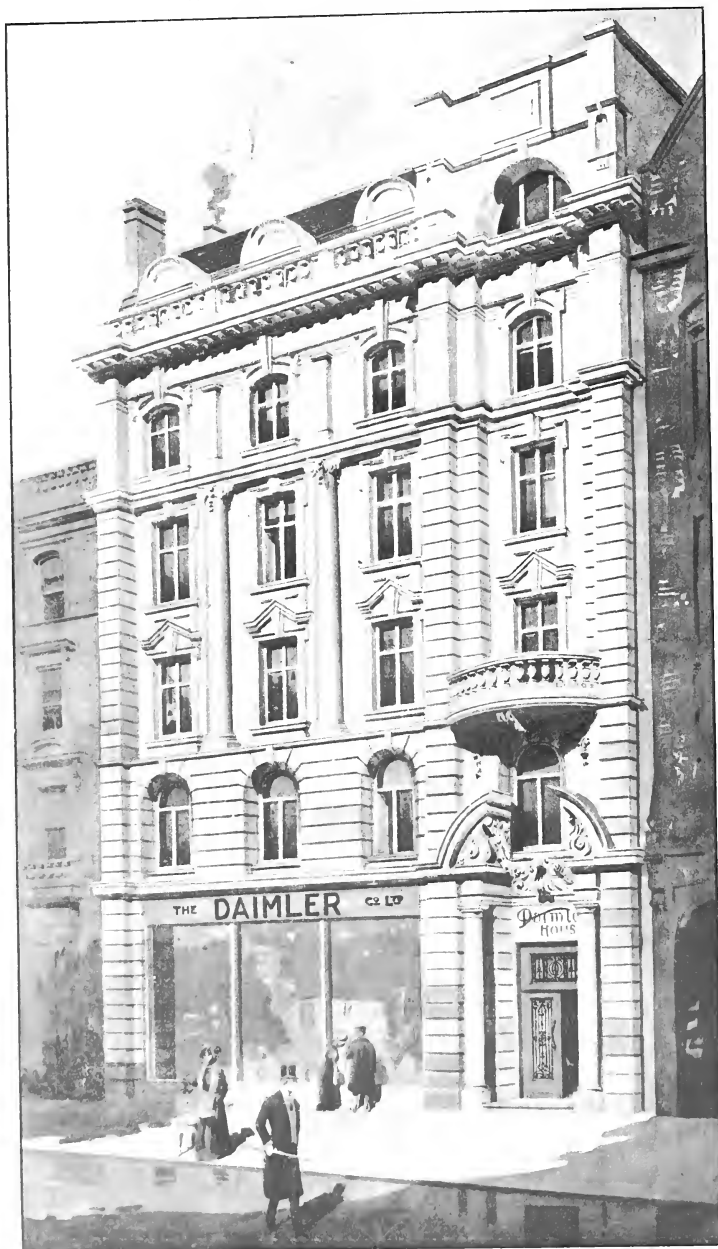
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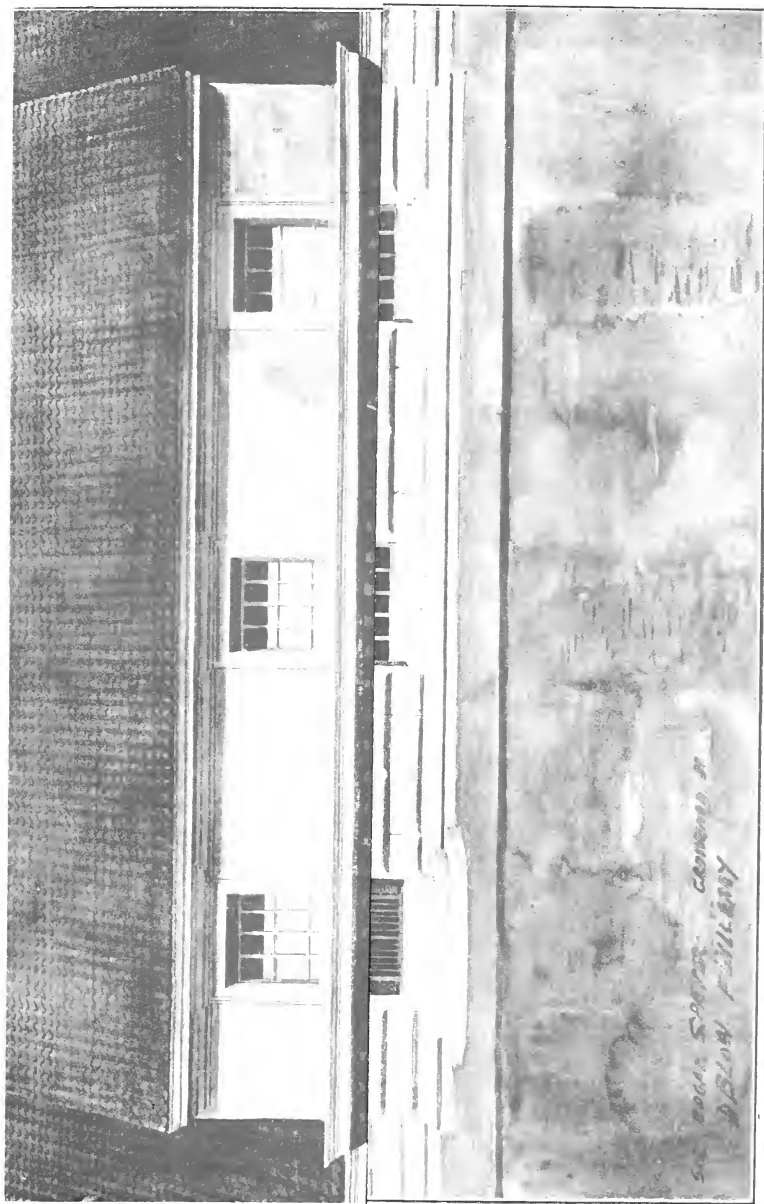
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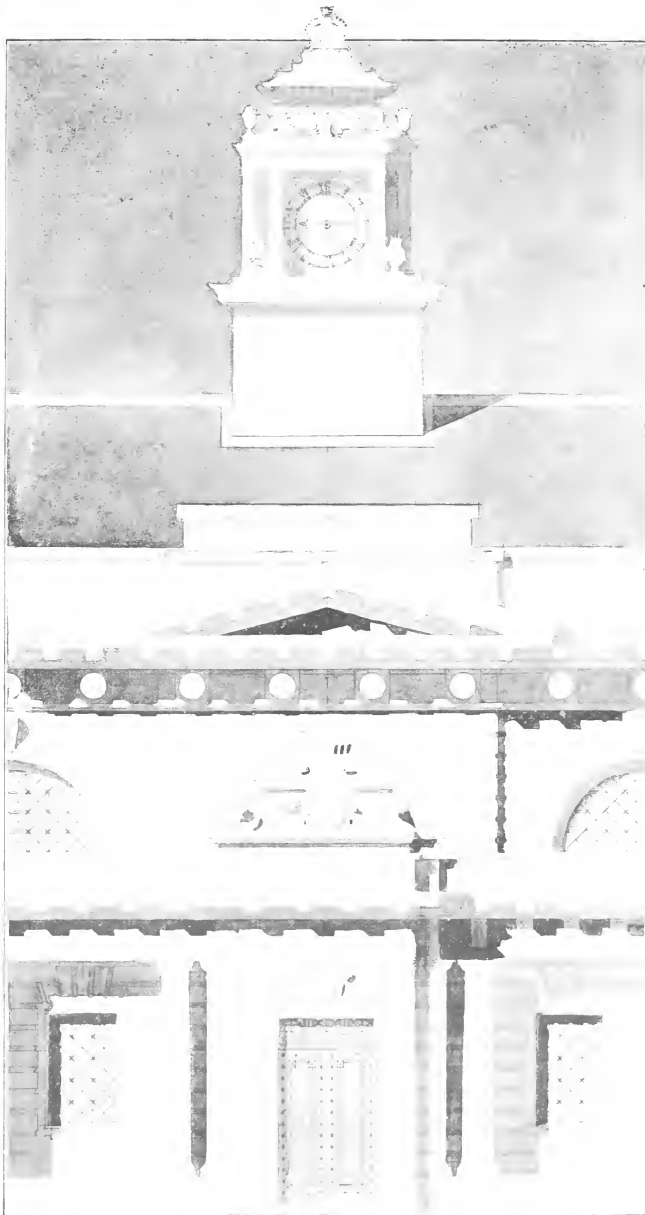


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POLICE BUILDINGS, STOCKPORT.
Design by Mr. EDWIN COOPER, F.R.I.B.A., Architect.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinham House,

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OUR ILLUSTRATIONS.

No. 16, Avenue Road, Hampstead, and No. 12 to 14, Devonshire-street, W. Messrs. Henry Faith-Summons, and A. Faulkner, Architects.

Church of St. Barnabas, Mosley Hall, Liverpool. Mr. J. Francis Dobbs, Architect.
 Preparatory School, Lashops, Stafford College. Mr. H. Hubbard, F.R.I.B.A., Architect.
 Golf Club House, Stanley Forest, Assoc. Messrs. T. T. Colclough, F.R.I.B.A., and Stanley Hamp. A.R.I.B.A., Architects.
 Great Horton Public Library, Bradford. Mr. Wm. Williamson, Licentiate R.I.B.A., Architect.
 House at East Grinstead. View and plans. Mr. T. E. Colclough, F.R.I.B.A., Architect.
 The Statuette, Crownwell House, by Mr. Fredk. Atcock.
 Tomb of James McNeill Whistler, Chiswick Churchyard. Mr. Edward Twiss, Sculptor.
 The Bacon Memorial Statue, Gray's Inn. Mr. H. W. Pomeroi, A.R.A., Sculptor.
 Prize Design for a Row of Six Cottages. Mr. Alfred C. Hannell, Architect.
 Brick Ornament.

THE LAND-VALUATION MUDDLE.

The debate on the 20th inst. in the House of Commons afforded an opportunity for the further exposure of the injustice, the anomalies, and the absurdities shown in the working out of the Land Taxes clauses of the Great Budget. One point, at least, was made very plain, and that was that the critics of the measure, and especially Mr. Petyman, knew more about its meaning and its methods than did the Chancellor of the Exchequer himself, with all the aid he gets from expert advisers. That Mr. Lloyd George was quite aware of this, and of its publicity, was shown by his undertaking to set up a full inquiry by experts into the administration of the Land Valuation Office. This has been repeatedly promised; but now, under pressure of the Budget's growing unpopularity, it is likely to be performed. But it will be necessary that all who are interested in the result should watch the terms of reference, and the inquiry itself, so as to insure some real results beyond a mere wordy and white-washing report. The crux of the whole matter turns upon the meaning of "site value," and no one knows what it means at least of all the Chancellor, who may be looked upon as the patron of the term, having taken over the theory from some unknown inventor. Probably the charm of the phrase is that it may be held to mean anything, and so be adapted to fit in with different facts and localities as questions of taxation arise.

There is, however, a deadly earnestness about the official figures that it is hard to hide away in the mists of officialism. The estimated cost of the Land Valuation Office up to now comes out at the round total of £230,000. The amount derived from the land taxes during the same period is as covered by these expenses only reaches the small sum of £37,000. Was it worth while to waste all this public money to bring about such a beggarly return? But that is only one side of the matter; for it is also reckoned that the cost to owners of property arising out of this new valuation runs up to about a million a year. All this money is supposed to come out of wealthy landowners, and so, from a popular point of view, and at election time, it does not matter. But this is, of course, only another financial fallacy, for the losses brought about by this land legislation fall alike on rich and poor—only, they hit the poor so much the harder. The professional classes everywhere have felt the strain of the stoppage in dealings in land and houses. Archi-

ects, surveyors, auctioneers, agents, solicitors, contractors, builders, and all the building trades have alike had to suffer for this great scheme of land taxation, which has only wasted public money, depreciated private property, and done no good whatever to the nation or the community. To spend a pound in getting in a shilling as revenue seems the very madness of a frenzied finance. Yet, so far, that is about the net result of our Land Valuation Office. Certainly, a good many positions have been made for people possibly deserving—who had formerly failed to do anything for themselves. The country has been covered with a network of jobbery, and our new official valuers have generally speaking become the laughing-stock of their profession.

The centre piece of the whole costly and amazing business is really the "site value." This is an abstraction, and reminds one rather of x in algebra as standing for the unknown quantity. More than this; for although an army of experts and officials have tried to work out the problem, it still remains as unknown as ever. There is no solution, and there never was meant to be. It is a sort of trick or trap, and any theorist can go on working round and round x as long as he likes, bringing out such results as he wishes, but cannot prove true. It is a sort of ideal that cannot be reached. No one ever bought or sold a "site value," or ever will. For practical purposes it is a mere figment.

Yet it is to be somehow made the very basis of a valuation of property upon which honest people are to be taxed for revenue purposes. These official valuations have been poured out upon the country in their thousands, and now the Chancellor says only a small number of claims based upon them are resisted. This is really too much like bluff, when we remember that ordinary folk could no more understand these amazing documents, with their varying values, than they could read a Sanscrit classic. Those folk are not willing to incur expenses over the yellow forms they receive, while as to resisting claims for innumerable duty that come in later, who is to fight a Government Department? Law is always a risky and a costly matter. But Revenue business is the worst of all. So people pay and pass on, thinking of other things, and perhaps of the next election. Nor is it fighting a claim of much use, for the various decided cases have never been accepted as generally binding on valuers, and so can readily be distinguished where the facts slightly differ. The Government have so far refused to agree upon any test case,

although this is the only way by which some guiding principle can be laid down for practical use. It is to be hoped that during the coming inquiry something will be done to remedy this gross injustice, and to enable those who advise property owners to get some idea of the points that have to be proved or contested, for at present much of the fighting is in the air and in the unknown.

It is a commonplace nowadays to sneer at speculative builders and to jeer at jerry-building. This is all very well and very easy in its way; but the growing populations of our towns must have suburban dwellings, and these are not likely to be built by any other method. When municipal authorities de build for themselves, they often, if not usually, do so at a loss to the ratepayers, although the rents charged are high enough—and, in fact, too high—for poor people. The method of financing builders and creating ground-rents under the leasehold system may be one that is wasteful on economic theories; but at least it enables capitalists to put out their money, and it brings profits to various professions, besides enabling builders to earn a living and pay good wages to many workmen, to say nothing of keeping the various building trades prosperous. All these things are for the good of the community, and people get the houses they want, and at prices and rents they can pay. One effect of the land taxes has been to fill the country with broken builders, and to leave thousands of men out of work. By stopping the rate of house-building, it has also caused a scarcity, with the result of raising rents upon the poorer classes, and so adding to the growing cost of living. This is even being felt acutely in rural and agricultural districts also, where estates are going to be scarcer than ever. It is now reckoned that quite half the rent paid by a working man goes in rates and taxes, and the old theories about landlords' wealth, as well as in regards to builders' profits, sorely need revising.

It appears that there are now fewer than 263 appeals against valuations awaiting hearing, and so it goes on. But the law's delay, though bad enough, is nothing to the law's uncertainty, and this it is which has kept the building trade down ever since the Budget passed. There have been decisions given against the valuers over and over again in particular cases, yet no general rule has been evolved that is widely applicable. The gaining of a victory on one specially absurd valuation is very little, if any, use in its application to another. It is said that all the valua-

and you will share the honour. If you do not find that special pencil, you will still find it very easy to design the house which your client wants—build it to your client's design, and nobody will grumble, unless it is the client himself."

"Whatever do you mean?" said Jones, "came to ask your advice, not to be insulted."

"I am perfectly in earnest," I replied, "and I can hardly see how my advice as to your entering what you consider a high-class profession can be considered an insult."

"I do not understand you," exclaimed Jones. "Do you seriously tell me that my son, after being trained and articleed, would only have his own training and merit to distinguish him from anyone who chose to describe himself as an architect?"

"I do," I said, "This very morning a one-eyed, third-rate speculative builder, weighed down by years and quite unconscious of his past and present delinquencies, calmly informed me that he had joined my profession, and tendered me a card in evidence of the change."

"Never!" gasped Jones.

"Yes," I said; "but there is one great extenuating circumstance in his case. I am the last person to suggest that a man with one eye is only half as good as a man with two eyes. He may be much better; but this particular individual is half-blind in the one eye he has left, and fortunately has been quite unable to see what he has been building for many years. The same applies to any designs he may now produce; but, for all I know, he may have that pencil you covet for your son."

"Never mind that pencil," said Jones, savagely. "If I take what you say seriously I should immediately try to wean my boy from all his architectural aspirations, and choke his artistic feeling before it develops."

"Don't be so precipitate," I said. "In a contemplative fashion, and a tranquil state of mind, free from every kind of passion, some solution you will find. Let your boy remain at college for another year or two. Let him graduate in arts, and, in the meantime, come and see me again and thrash the matter out. There is a proposal to close the profession to all but qualified architects, and something may come of it. By the way, have you seen Smith lately?"

I had less respect for Jones when he left than I had on his arrival. He had insulted me throughout the conversation, unintentionally, perhaps, but that only made his offence the greater, and his lack of perception the more apparent. He knew that I had been an architect for forty years, and that a very large portion was mine. He ought to have known that a replica of the enchanted pencil was in my own pocket, and that opportunities and honours had passed me by.

Jones had put his dream into words. With a father's high opinion of the capabilities of his own off-spring, he had delineated his son's destiny, and, in doing so, had in no uncertain manner suggested that his son's capabilities were of a very different type to those of the person whose advice he was asking. He had implied that with forty years' experience his son would attain to an eminence which was certainly not mine. It was apparent to me that Jones must be looking further than his own personality for any hereditary merit which he believed his son to have. Jones had not in any way suggested that his son should be articleed to me. Had he only done so and touched the matter of a premium, however lightly, it is possible that my statement of fact might have been influenced in a manner more to his satisfaction. H. GUTHRIE TODD.

BRICK ORNAMENT.—IX. PARAPET-WALLING.

The parapet-wall as adapted to the tops of various structures is one which requires some consideration. It is a position where the various forms of brick ornament can be used in a simple and restrained manner with a large amount of effect. A little decoration

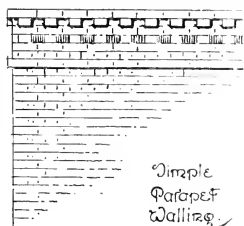


FIG. 1.

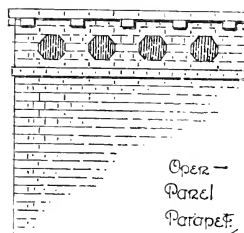


FIG. 2.

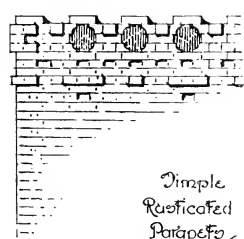


FIG. 3.

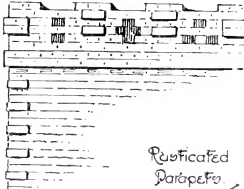


FIG. 4.

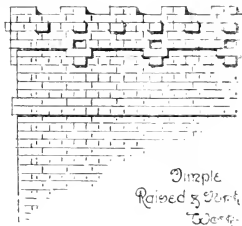


FIG. 5.

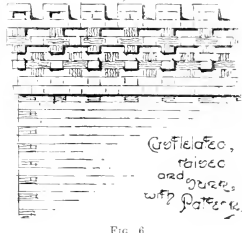


FIG. 6.

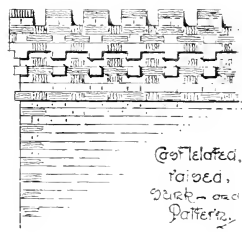


FIG. 7.

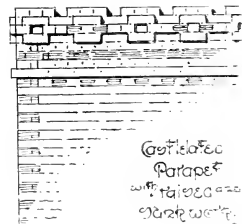


FIG. 8.

so applied would prove less expensive, in many instances, than a cornice, where the latter class of work might have to be omitted on this account. Some of the simplest work in this direction has a good amount of picturesque effect, even with plain-brick dentil courses and perforated leaders, as shown by Fig. 1, or the larger openwork panels, as shown by Fig. 2, formed with the splay brick. Rusticated work is another form which gives good results when so applied, somewhat after the style illustrated in previous articles, or as shown by Figs. 3, 4, and 5. The succeeding two examples, Nos. 6 and 7, illustrate further slight elaborations with raised and sunk broken lines combined

with pattern and hollowness. The latter, being used in combination with the projected pattern, gives a pleasing effect of the pattern along slightly raised and sunk faces. It has not, therefore, the same hard effect as a wholly projected pattern. At the same time it is produced by a stronger than simple raised and sunk work, a method which is easily and cheaply developed with ordinary bricks. The corbelled parapet, and the dentil courses, or the similar character of work, as shown by Figs. 8 and 9, are examples of plain banding with raised and sunk courses, combined with rusticated work.



Griffled
Parapet,
raised, dark,
and pierced.

FIG. 9.



Griffled,
with slight
raised & dark
work.

FIG. 10.



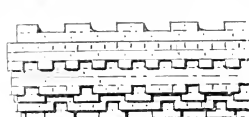
Griffled,
with slight
raised & dark
work.

FIG. 11.



Raised &
dark
work.

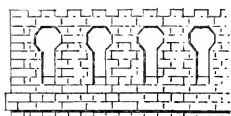
FIG. 12.



Pierced
Spire.

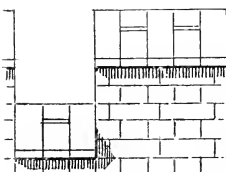
Parapet
Raised in
Work.

FIG. 13.



Elongated
Pierced
Parapet.

FIG. 14.

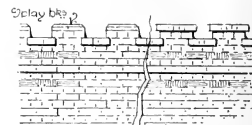


Queen Clovers.



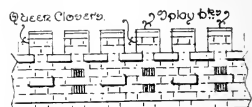
Simple Griffled
Parapet.

FIG. 15.



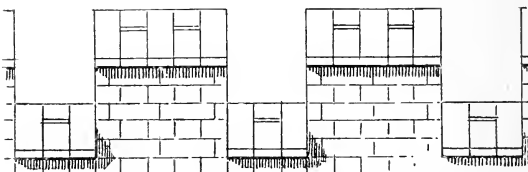
Simple Griffled
Parapet.

FIG. 16.



Simple
Griffled.

FIG. 17.



Elevation.

Plain
Griffled.

FIG. 18.

Spire
Pierced
Spire.

Section.

work as illustrated by Figs. 10 and 11. The latter, by the way, pleasing results are obtained by the addition of the in-verted splay brick bands, as shown by Fig. 12. These all add a more enriched appearance. Overlapping courses in good work, with their members, or a little cutting, as illustrated by

Fig. 13, is productive of some really nice work. The following illustrations Nos. 14 to 17 show various forms of pierced and castellated walling, either in the regular bonding, or with slight variations in the top

courses to avoid cutting. Quite a good design can be produced in this style, with projecting weather-capped courses, by means of the inverted splay brick, as illustrated by Fig. 18. A little cutting is required by the



The STAIRCASE.
CROMWELL HOUSE
Fred Adcock

alternate tie in bricks; but a great deal can be avoided inside by the use of pointed coping bricks, as shown by the section. Although this style is seldom used in modern work, embattled parapets, etc., with their Mediaeval air, still form one of the most picturesque methods of architectural treatment.

W. G. KERBY, Architect.

STAIRCASE, CROMWELL HOUSE,
HIGHGATE.

This famous staircase in Cromwell House, once the home of General Ireton and of Bridget, his wife, eldest daughter of Oliver Cromwell, is likely to be removed to America, if credence is to be given to current reports. Besides the staircase, of which we give a sketch by Mr. Fredk. Adeock, of Hampstead, made quite recently, the house contains some very fine oak panelling, at present buried under the accumulation of oil paint during centuries. Prickett, in his

"History of Highgate," says Cromwell House was erected in 1630 by the Protector, and the figures on the staircase were supposed to represent persons in General Ireten's army, while emblems of war are introduced in parts of the design. The cutting of the drawing-room has his arms incorporated in ornaments of the period. The Middlesex County Council have numbered Cromwell House in their list of "Historic Buildings" which ought to be preserved. The grounds are over an acre in extent.

Morpeth Rural District Council have resolved to ask the Local Government Board for leave to borrow £9,000 to carry out a comprehensive drainage scheme for the Chevington portion of their district.

The new chapel which is being added to Gratham's Grammar School at Holt, Norfolk, in commemoration of the 350th anniversary of that institution is being built from plans by Mr. J. W. Simpson, F.R.I.B.A., of London, and will cost about £5,000.

ROYAL INSTITUTE OF BRITISH
ARCHITECTS.

ing and a number is attending of ladies and servants, including many ladies, at the closing meeting for the present session of the Royal Institute of British Architects, the other two being Tuesday evening, the 22nd, at the Royal Gold Medal to Mr. Basil Cammilleri, and of Mr. Ogilby's paper, Mr. Laidlaw had the honor to be elected one of the members of the Institute for the first time. Mr. Stokes occupied the chair, and among those present were Sir Aston and Lady Weymouth, Ernest and Lady George, and Mr. G. G. Jackson, R.A., and the retiring President, Sir Reginald Plenderle, A.R.A. In 1922, 1923, and 1924, the Institute have been successful in procuring photographs and some working drawings of buildings, executed from Mr. Cammilleri's designs.

Mr. H. T. Harte, Hon. Secretary, announced the deceased members—Mr. Edmund James Moberly Allen, Associate since 1882; Mr. Ley's Angell, elected a Fellow in 1841, who was placed on the list of retired Fellows in 1902; Mr. Albert Edward Fitch, Licentiate since 1911; and Mr. William Edmund Wallis, Associate since 1882.

The President said that when he was elected to become Fellows of the Institute, he was warmly admitted by a slow and complicated process, after examination, but in certain rare cases the Council exercises the power if they possessed to nominate for direct election architects of unusual distinction. Such an opportunity had now presented itself, and the person of an architect bearing in the third generation the distinguished name of George Gilbert Scott. His grandfather, the late George Gilbert Scott, a former President of that Institute, was his father, the late Mr. George Gilbert Scott, and he now was the privilege of proposing from the chair that Mr. George Gilbert Scott, the architect of the new cathedral at Liverpool, which the section already built exhibited very fine qualities, be elected as a Fellow.

PRESENTATION OF THE ROYAL GOLD MEDAL.

The President continued:

What we need to-night, as you know, is to do honour to our very distinguished colleague, Pascal Chagnon, by having him the Royal Gold Medal which, on our recommendation, has been conferred upon him by our Royal Patron and King George V. The Royal Gold Medal is the highest honour which we can confer upon a member of our profession, and we are proud to recall the names of former recipients to find that they belong to men who, if alive, are honoured, respected, and admired by all of us; or, if dead, are acknowledged to have been the great men of the age they lived and worked in, and it is only necessary to mention such names as Cockerell, Parry, Donaldson, Ferguson, Owen Jones, and Sir George Street, Sharpe, Pease, Pierfield, and Poley, as among those so honoured by their Sovereign to prove the station of proof is necessary.

In 1918 Queen Victoria—who had at ten years previously graciously consented to grant Patron of our Institute, resolved to grant and confer annually, at the recommendation of the Institute, a Royal Gold Medal for the promotion of architecture. This medal was awarded in that year to C. R. Corbetti, and the award has been made without interruption in each succeeding year—except in the year in which Queen Victoria died—to some distinguished man; not always an architect, as we readily admit, but there are others—poets, novelists, and even a promoter of architecture—for example, Victor Horta, man, who by their books and pens greatly advance the cause we have all so much at heart, and they have on several occasions received this medal. Again, the recipient need not be an Englishman, an Italian, Austrian, or a Frenchman, a German, a Dutchman, or an American; all have received the medal. So far, however, it has not gone to an inhabitant of one of our great colonies,

- (c) *Test procedures and instruments:* Nomenclature, chemical and physical qualities, testing apparatus, etc.
- (d) *Manufacturing of road materials.*
- (e) *Statement of weight and capacity.*
- (f) *Experiments on weight and measures of*

The President, who was involved with

STANDARDISATION OF ROAD MATERIAL.

Sir George Gibbs, Chairman of the R. Board, said he hoped it would be the general opinion of the committee that the standardisation of road motor cars was desirable. When he became impressed with the need of such standardisation he thought the most practical and best way to achieve this end was to approach the Engineering Standards Committee, which had been doing such a record of valuable and successful work, and he hoped, therefore, that a committee would be formed for the purpose they had in view.

The meeting then turned to the consideration of the matters before the conference, and Sir George Gibb proposed, and Mr. Stens Cooke seconded, that the standardisation of material was desirable.

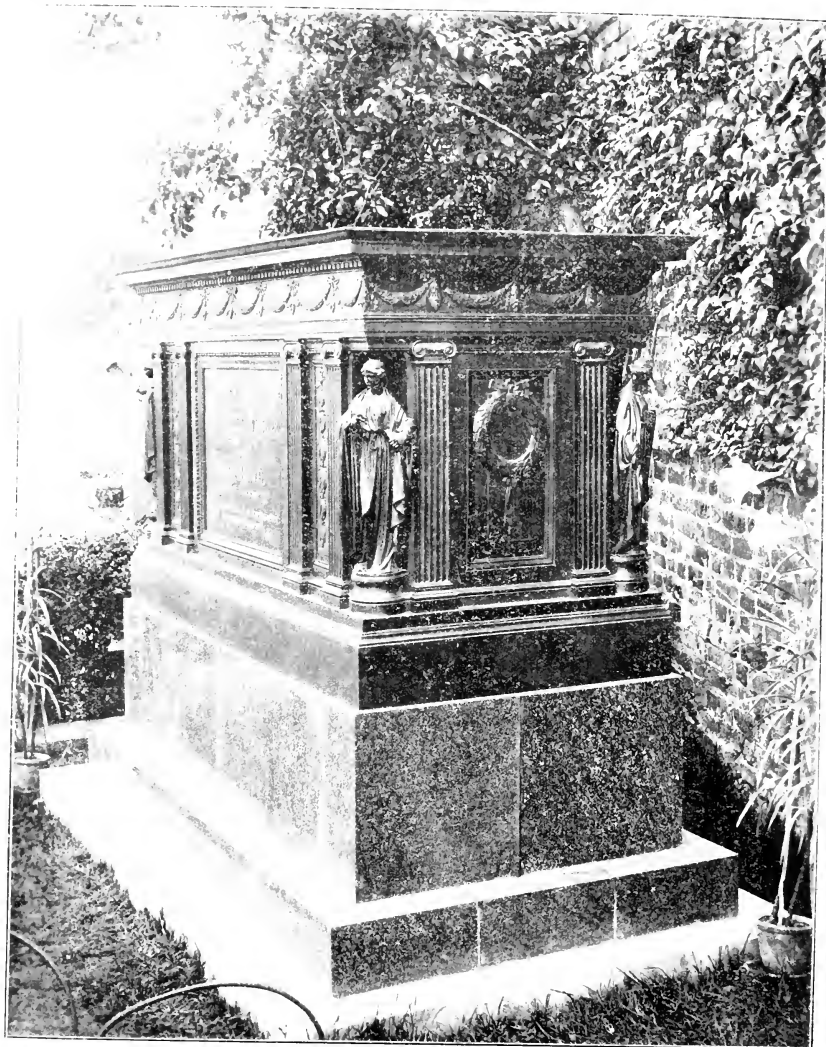
Mr. R. E. Martin, speaking from the point of view of a representative of the Quarry Masters, said that the quarry masters were not prepared to make a counter proposal. Sir George Gibb's motion; but they thought that the conference should bear in mind the possibility of standardisation somewhat diminishing the output, and, therefore, increasing the price of material. They thought there would be difficulties in the way of standardisation, but they were quite prepared to give their assistance to the standardisation of the matter.

The chairman pointed out that it has always been recognised by the Engineers' Standards Committee that their committee should be representative of the manufacturing community as well as of the engineers or peers, and was quite certain that the main committee would bear that in mind if a sectional committee was formed.

A general discussion followed upon matters to be held by the committee referred, and Colonel R. E. Crompton forwarded a plan that this should not limit many decisions that the committee should have and decision as to the matter should be considered and decided to be

Many members spoke in support of Coleman's view, and I was relieved that some of the committee's inquiry should be the standard on road stones. I made a statement on the construction of road stones, and the materials to include gravels and sand, stones, and bitumen.

With regard to the best method of giving effect to the wishes of the audience of a resolved to recommend to the main committee that it should be enlarged and the



TOMB OF JAMES McNEILL WHISTLER, CHISWICK CHURCHYARD.
Mr. EDWARD GODWIN, Sculptor.

the fact that the committee of the Society of Engineers, proposed a vote of thanks to Sir John Wolfe Barry for presiding at the conference, which was accepted and carried with applause.

Among ourselves there is a general belief that the other world as hard as birth can be

the fact that the committee of the Society of Engineers, proposed a vote of thanks to Sir John Wolfe Barry for presiding at the conference, which was accepted and carried with applause.

Among ourselves there is a general belief that the other world as hard as birth can be with this world of the tools.

TOMB OF JAMES McNEILL WHISTLER, CHISWICK CHURCHYARD

The earth's tomb, erected soon after his death on the south side of the parish church, has long made Chiswick Graveyard famous, and now the monument just completed in memory of James McNeill Whistler, nine years after his death, will further add to the interest of

this prettily-situated and well secluded cemetery amidst the trees hard by the banks of the Thames. The grave of Whistler is not far from the vault of Philip Louthenbaug, R.A., who died in 1812, his tomb being rather a good one in the taste of that period. Whistler's grave has always been well garnished with flowers. His monument now put up is in bronze, the base being in granite. It was designed by Mr. Edward Gwyn, sculptor, of Chelsea. The inscription reads "Sacred to the Memory of James McNeill Whistler, MDCCCXXXIV. MCMIII. and of Penelope, his wife, MDCCCLXVII. MDCCCXCVI. The place where I also at last hope to be hidden, for no other world I have." For years Whistler lived in Chelsea, where Edward W. Godwin, F.S.A., the well-known architect, and frequent contributor to these pages, built him a house in Tite-street, close to the river. The beauties of Whistler's marvellous little etchings of the Thames below "the Pool" and elsewhere, are undoubtedly among the best productions of his facile skill, and as a simple etching printer he was facile princeps. It was wonderful to see how dexterously he graduated and softened the ink upon his plates with the palm of his hand. He etched indefatigably out of doors in all weathers, and often with the copper plate on which he worked as cold as ice in his hand. The portraits of his mother and of Carlyle will ever rank with the masterpieces of modern British art, whatever may be thought of his "nocturns," which Ruskin declared against. His love for posing in Society, and his reputation as a keen fighter, mostly actuated as he was by caprice and singularity, were the least admirable traits of his character. When in Venice, after his bankruptcy, he was in very straitened circumstances, and endured many hardships. His old hat being badly torn a kindly friend stitched up the rent, but Whistler ripped it open again, saying, "A darn is premeditated poverty, but a tear is the accident of a moment." A hackneyed sentiment, but one, perhaps, not incomprehensible by nobler minds.

THE BACON MEMORIAL STATUE, GRAY'S INN.

This beautiful statue, by Mr. F. W. Pomeroy, A.R.A., adds a real work of art to the none too numerous ones of its kind in the Metropolis, and Mr. Balfour unveiled the monument yesterday. The figure is in bronze, 6ft. 6in. high. The pedestal is in Portland stone, 6ft. tall. Francis Bacon, Lord Verulam of St. Albans, was born in 1561 and died in 1626. The statue was exhibited at the Royal Academy last year, and represents Bacon in his robes as Lord Chancellor, holding in his left hand the case containing the Great Seal. The monument stands at the east end of the lawn in South-square.

THE LONDON COUNTY COUNCIL.

At the meeting on Tuesday of the London County Council a report was received from the Local Government Committee, recommending that the present site at Newington be utilised for a new building to accommodate the London Sessions. The Committee pointed out that very few sites in the central districts are available, and that the cost would be not less than £250,000 capital expenditure. They were not satisfied that the advantages would be commensurate with the heavy cost, and stated that it appeared to them that the objections made to Newington on the ground of its situation had been somewhat overrated, and were counterbalanced by other considerations. The cost of erecting a new courthouse at Newington is estimated at £100,000. This is based on the assumption that the new building will be erected under the supervision of the Council's architect, who has considered the site from the point of view of architectural treatment, and prepared sketch plans of a new courthouse thereon, which have been provisionally approved by the Standing Joint Committee and the Commissioners of

Prisons. The Theatres and Music Halls Committee recommended the Council to approve plans by Messrs. Welton and Pons for the reconstruction of the Tach Music Hall, Strand, with seating accommodation for 1,500 persons, provided that the work

be done and the enlargement of part of the main stairs. The Education Committee in resolution thus provided a plan for the reconstruction of an estimated cost of £147,220. The Council is being strongly improved by the erection of halls, etc., at a cost of



THE BACON MEMORIAL, STATUE, GRAY'S INN.

Mr. F. W. POMEROY, A.R.A., Sculptor.

begun within six months and certain conditions are complied with.

The Education Committee, in its half-yearly report, stated that work is proceeding in connection with the erection of two new central schools and four new secondary

schools, and the enlargement of part of the main stairs. The Education Committee in resolution thus provided a plan for the reconstruction of an estimated cost of £147,220. The Council is being strongly improved by the erection of halls, etc., at a cost of

CURRENTE CALAMO.

Mr. Leonard Stokes on Monday night briefly, but very admirably, summarised the dual claims of Mr. Basil Champneys to the Gold Medal, the award of which has evoked such universal approval. Mr. Basil Champneys' work as an architect has many times been appreciated by our readers. We wish they had often enjoyed the fine quality of his work as an author. Mr. Leonard Stokes said on Monday night there are very few architects nowadays who can really write. That is true, unfortunately. Literary power and sympathetic appreciation of subject are gifts that the orator or writer cannot command, however diligently he may study rhetoric or syntax. Mr. Basil Champneys probably inherits both from his distinguished father, whose sermons reached the hearts of his hearers at St. Paul's so powerfully in the mid-Victorian days. We remember more than half a century ago it fell to (then) Canon Champneys' lot to make a presentation on behalf of his parishioners to a brother London clergyman, and the magical transformation of the tone of the assembly from that of decorous approval to eager interest, which a few sympathetic reminiscences effected, and the genuine pathos of the response of the recipient that they evoked.

Anyhow, Mr. Basil Champneys has used his gifts well, and mindful, perhaps, that the Greeks—the world's masters in Art and song—derived the poet's name from the word to make, has not left us altogether, as Hardy and Hall Caine did, for letters. If our regrets, as Mr. Leonard Stokes did, that our new Gold Medallist has not applied himself more to the critical treatment of architecture in his writings, it is because his excellently-phrased summary on Monday night of the problems of architecture which must severely tax ingenuity and invention in the immediate future, indicated beyond all question his ability to suggest their solution, although—perhaps because—he himself "has been quit of them so far." A master of his art owes it to the rest of us to do more than "hope" that our necessary buildings are not to be permanently banished from its legitimate domain by metal construction clothed with an external facing entirely independent of it.

Last week we announced the awards of the prizes for the year at the Architectural Association, and, chief amongst them, "the Association Silver Medal and £10 10s.; the subject of this competition being a design for the treatment of the Gardens End Head of 'The Serpentine,' Kensington." Mr. R. M. Pigott, of Wandsworth, won the medal, and his design no doubt evinces much thought, and not a few meritorious points on formal garden lines, more or less applicable to such a scheme, having as its chief architectural feature a "Pump House" on the site of the present structure which fixed the position. To the right and left of this centre piece, set at the head of the composition, range quadrantal colonnades with coupled columns, the enclosing lines of the double quadrangle southward being continued by a series of lofty yew hedges, shutting off rose gardens on the east and western flanks. A pair of lily ponds, one below the other, occupy the middle space, their width corresponding with the extent of the Pump House on the north, while between these ponds a garden temple and

statues furnish the *tour de force* in the cross avenue, stepping down as it must to adapt the contour of the site and bisecting the two quadrangles, a fountain being placed at both ends, between the smaller rose gardens mentioned already. The water from the lower lily pond overflows by way of some semicircular steps into the lake of the Serpentine.

The architecture of the scheme is refined and unpretentious, and the scheme is set out by a detail in pencil and blue grey wash to life, scale, mainly in illustration of the "Pump House." The general drawings are finished to the size of 16ft. to the inch, delineated in pencil in a manner which hardly lends itself to satisfactory reproduction; moreover, the precise size and character of the elevations and sections themselves render the making of a satisfactory illustration impossible. In our judgment, the prescription of a subject like this is not wise, though it fits in, no doubt, with the passing craze for diversions of this sort, on the border line of town planning coupled with formal gardening. We should never limit any student to commonplace subjects; but surely the purpose of the prizes awarded by an elementary teaching authority like the Architectural Association might be devoted to something a little less ambitious than such a scheme as this for laying out the Garden End of the Serpentine. Some alternative a little more within the possibilities of an ordinary architectural practice might prove more useful.

It is our last wish to find fault with the Silver Medallist's work on this occasion, and we understand the natural desire among progressive people to select "up-to-date" subjects, and to stimulate by a tinge of romance the ideas of the aspiring competitors; but, after all, everyday problems must severely tax the skill of genius, to say nothing about developing the practical capabilities which make all the difference between a successful architecteé wanted by the public and the idealist, who often is an æsthetic Jack of all trades and a master of none, useless to himself, and a nuisance to his clients.

Few artists have been more fortunate in their lives and work than Sir L. Alma-Tadema, and fewer have more honestly and fairly won fame and wealth. Of his best, with his utmost pains, he gave, probably, the best of the sort the ordinary cultured layman is capable of appreciating. If that was repeated again and again in his four hundred pictures—or more—it is equally true that it became better and better as far as colour and elaboration of beautiful detail went. Of passion or power there was no trace in his subjects. They are costume pictures; but there is all the difference between them and the costume pictures of the average artist, as between the costume-plays as mounted by Irving or Tree and those of the ordinary scenic manager. They will fetch their prices and please their owners as long as they endure, just as the interiors and genre pictures of the old Dutch artists do. But as no one who saw their author crowned with bluebells at the Institute of Painters in Water Colours Ball some years since could have really believed him an ancient Roman, so few can ever feel carried back into sympathy with or interest in the calm still Greeks and Romans and Egyptians

whose opulent surroundings are so suggestive of pageants or stage groups, and so barren in conception of the true spirit of the period and subject suggested.

Builders and building owners should note Mr. Justice Joyce's judgment, which we give this week, in the case of "Dunman v. the Hucklebury Urban District Council," which we fully reported in our issue of the 14th inst. The point involved has never before been decided. Section 150 of the Public Health Act of 1875 says nothing about a time limit, and as Mr. Justice Joyce remarked, the action of the Urban District Council left the frontager in this case with no remedy at all. There were evidently negotiations for an arrangement pending between the Council and the builder, who seems to have acted in a perfectly bona-fide manner. They went off, apparently, as the judge said, because the defendant Council wanted to make the plaintiff pay their inspector's fee, which they had no legal right to impose, and we think Mr. Dunman was fully entitled to have his surface water-pipes connected up, and that the decision in his favour is just and reasonable.

Each of them is such a past-master in official art of saying much that means little that nothing is likely to better things either as regards the Victoria and Albert Museum or the Piccadilly façade while Mr. Pease and Mr. Masterman are responsible for the Departments respectively concerned. As will be seen in our "Parliamentary Notes" this week, Mr. Pease admits that many of the water-colours at South Kensington have been hidden away from the public for nearly two years, although the improved lighting of the galleries they were removed to facilitate has been completed these six months. As regards the Piccadilly façade, Mr. Masterman's distinctions between new buildings and old façades is as ingenious as his dread whether the apparently only possible conclusion to be arrived at from his reply is justified! Small wonder, perhaps, that on Tuesday morning inquiring legislators had to travel into the Woods and Forests, where, it seems, Mr. Runciman rules Piccadilly and Regent street, to pray that potentate to pledge himself to propitiate the Regent-street shopkeepers by the promise of a "small committee."

The Copyright Act comes into force on Monday, and many handbooks to its scope and meaning are already published. One of the most pertinent comments we notice is that by Mr. George Smart Robertson in his book "The Law of Copyright," published by the Clarendon Press. What is the precise difference between "drawings of any architectural work of art" [s. 2 (1)] and "architectural drawings" of the same? Mr. Robertson says:—

The Court, when the matter is discussed, will have no small difficulty in deciding what is artistic, or what is not in relation to an "architectural work of art." Many of us would say, for instance, that a plain old Georgian house was much more artistic than the queer-shaped erections which are put up in garden cities, but the builders of the latter would not admit this. Some day, perhaps, the Courts will have to decide how far a thing is artistic because it has a queer shape, though the ordinary tribunal probably one of the worst means that could be devised for settling questions of aesthetics. The way to avoid, or hinder, by the additional modification that the work has to be "original."

We fear they will, as we pointed out long ago. If any originalism is put forward for copyright law, Mr. Robertson calls "the

When Mr. Campbell was appointed Keeper of the National Museum, Mr. Dolgson, in succession to S. S. Peabody, in 1893, has been appointed. Mr. Campbell has been in the position of Registrar since 1891, and with Mr. L. C. Custer, who was assistant, has been appointed Keeper of the National Museum. Mr. Dolgson has taken a deep and sincere interest in the improvement of the museumship in England, and his deep personal strength in contemporary sciences and collections, considering that a good foundation is available to support it, is a guarantee that it will be utilised to the maximum. Skilled expert and genuine enthusiasm in the quest of really good things, Mr. Campbell Dolgson's appointment is one which the Trustees of the British Museum ought to be sincerely congratulated.

As yet, the melted coins of various denominations are issued in France to replace the present bronze money, the bronze coins are, it appears, to be melted into ingots and kept in the State for the use of artists connected with official commissions of statuary, just as the State provides marble for a similar object from the national depots. Up to the present it has been the practice to use old guns; but as discarded guns are becoming scarce, the bronze will come in very handy. In the future a beautiful bust by Rodin, or some other master of sculpture, will appeal to the eye as a triumph of genius, and only the Philistine will retort that this thing, etc. took its new lease of life and nobleness, represented the greasy coppers of empires, changing suddenly from hand to hand.

The Watlington Urban District Council have decided to apply to the Local Government Board for permission to borrow £35,745 for the purchase of land at Pusey and the erection of 159 houses, under the Town Planning and Housing Act.

The new pews in Christ Church, Roxtoth, erected by the children of the late Mr. and Mrs. Carter, in their parents' memory, has been dedicated by the Bishop of Willesden. The pews are executed in oak, the centre being formed by a painting of the Crucifixion.

At a meeting of Haddingtonshire County Council and Road Board held in Haddington on Friday, the construction was authorised of a new road and bridge near Cranshaws, at a cost of £1,500, two-fifths of the cost of which will be repaid the Eastern district of Haddingtonshire, Warwickshire, applying the remainder. The construction of the coast road between The Seaton and Gifford North Lodge, at a cost of £3,500, was approved, a scheme which will be repaid to the same district by the railway.

The committee of Bristol have recommended that the docks committee recommend the use of some of the existing floating plant and replacing it by machinery of their own design and greater power and the dredging work will be done by B.D.C. The dredger will be adapted to the deeper water which is to be done at the Royal Albert Dock. As a result, will be purchased a new dredger which will change is about £13,000 and the arrangement to replace the existing one as well as greater efficiency. The new Royal Edward dock has obtained a considerable addition to the amount of dredging work and the work will be done by the existing plant. It has been increased by the existing plant. It is estimated that in the cost of dredging in the new plant, including the cost of the plant, interest and sinking fund, will be about £100,000. The cost of the plant was proposed, and reports were submitted to the committee. It was estimated by the committee that the cost of dredging in connection with the new plant in the channel and dock would be about £100,000.

WHY SOME REINFORCED CONCRETE WALLS ARE RUINED IN COLD WEATHER.

By C. W. OLDER,

One of the greatly discussed features of every concrete job is the expansion joint. The joint itself, of course, is familiar to all engineers, but in many cases there is no provision made for the reinforcement of it.

head reinforcing bars are allowed to stop

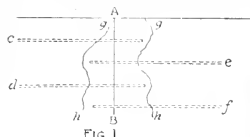


FIG. 1.

On both sides of the joint, a number of in-concretes may result. In low temperature the joint will open. In a heavy retaining wall with a well anchored footing, this may not be very serious. A thin wall would be cracked. Take care to make the wall on the wall of a concrete arch bridge. The expansion joint will be located where the wall butts against the pilasters. When the bridge is completed, there will be a great pressure of back fill from the inside, tending to force the joint open. To avoid this, the joint socket joint, this can be avoided, as long as the weather is warm, but in cold weather the joint opens. This action the first year may not be noticeable, but eventually this wall will crack just above the joint. The tendency of the floor beams to force the wall outward, although not to a very pronounced degree. Walls can be designed heavy enough to overcome this, but that is expensive. The unit instead of in their weight.

In attempting to overcome this condition,

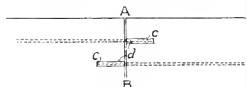


Fig. 2

some designers have made a bad matter worse by running the horizontal reinforcing bars through the expansion joint. A number of such examples could be cited. When the temperature dropped to around zero, the concrete and steel contracted considerably, and the joint opened. The concrete cracked the wall on the opposite side of the joint. As in illustration, A B is expansion joint, *c, d, e*, and *f* are reinforcing bars, and *g* and *h* are cracks caused by the contraction of both concrete and steel. It is a well known fact that concrete is a very good material to resist compression, but is unable to allow the ends to slide a short distance in the concrete. These cracks would never have occurred. An iron sleeve or tube about one-eighth of an inch larger in diameter than the rod extending from the joint end of the reinforcing bar, would allow the ends to slide, and thus prevent the rigidity of the wall. This design can be illustrated by A B representing the expansion joint, *c* the open end-sleeve or tube, and *d* the reinforcing bar. It can be easily seen that by allowing the reinforcing rod *d* to slide in sleeve *c*, there will be no tendency for the wall to crack. The only thing we have the longitudinal benefit of the bar, also. —*American Carpenter and Builder*.

THE HELLENIC SOCIETY

The annual meeting of the Society for the Promotion of Hellenic Studies was held on Wednesday afternoon in the rooms of the Society of Antiquaries, Burlington House. Sir Arthur Evans, the president of the society, who occupied the chair, gave a

inaugural address on the persistence of Minoan and Mycenaean elements in Hellenic life. Greek civilisation could no longer be regarded as an *enfant de miracle*. Its roots lay in the older indigenous culture, the Minoan, of its later, Mycenaean, offshoot. But after a discovery of such magnitude attributed to themselves could be traced back to their prehistoric predecessors. Summing up the most recent results in the field of Minoan archaeology, the evidence was now clear that from the earliest Minoan Period to the latest there was no break in the continuity, and the same must be said of the coming of Mycenaean civilisation to Greece in its origin a purely Minoan creation. Thanks to the recent discoveries made by the German archaeologists at Tiryns of a series of Mycenaean wall paintings, the record of the old Egean type could be carried down throughout the whole course of the Earlier and Later Palaces. It was the same old Minoan type, long exemplified in the Mycenaean dominion in the 12th century B.C. there was no place for an independent Greek population. Yet the influence of this earlier civilisation on Hellenism could hardly be overrated. Among the striking survivals in religious art, the newly discovered pediment sculptures of the early Dorian temple at Siphnos, and the long examples in Crete the instances of religious art were still no less remarkable, and the cult of the Cretan Zeus had finally been transferred to "Christ the Lord." The intensive absorption of Minoan elements had no doubt been facilitated by the juxtaposition of Greeks with the older stock for considerable periods and by the fact that the Mycenaean civilisation seemed probable that the primitive Achaean Greeks had lived in a subject position in the Peloponnese, though, at any rate, a large part of the period of Mycenaean domination. When, on the break-up of this dominion, the Arcadians, then in possession of Laconia, went out, not later than the 11th century B.C., to the island of Cyprus, they found them already thoroughly Hellenized, and the Mycenaean religion, and carrying with them the cult of the Dove Goddess. That fact alone pointed to long anterior influences. The poems of Homer belonged to a time when iron was beginning to supersede bronze for cutting purposes. Mycenaean itself had long been overthrown, and its civilisation was already shattered. How, then, was it that in the Homeric poems they found traces of an acquaintance with the Courts and Palaces of Mycenaean dynasts and with the masterpieces of Minoan art? The explanation, in his opinion, lay in the bilingual conditions that preceded the Homeric age. The traditions of an earlier epic—of which illustrations of the small number of Greek paintings and reliefs had been, in part at least, taken over in a translated form and adapted and reset to the honour and glory of the Achaean race. The personality of Homer himself was only enhanced by this view of his work. Certain epic passages and incidents had been illustrated by Minoan art, and the Homeric poems were the result. In conclusion, the president pointed out that over and above the direct survival of Minoan and Mycenaean elements in Hellenic life, there were at least some traces of a process of revival in the domain of art akin to that observable in Renaissance Italy.

A series of early Greek coin-types, notably those of the island, seemed to have been derived from Minoan gems and the types of an ivory signet of about 400 B.C., found in Western Crete, seemed to have been literally borrowed from the signet of some Minoan personage, and represented the costume and armour in vogue a thousand years earlier.

The annual report, which showed that the membership roll totalled 40, began with the motion of the President, seconded by Sir Edwin Pears.

The Board of Trade have sanctioned the borrowing of £14,182 by the corporation of Belfast for extending the tramways.

The French Government have purchased for the Luxembourg Gallery a landscape with figures by Mr. Wynford Dewhurst, entitled "Effet d'Atmosphere," and a picture by M. J. B. de la Tour, entitled "L'Atmosphere."

OBITUARY.

The death of Sir Laurence Alma Tadema from cancer of the abdomen occurred at Wiesbaden on Tuesday, at the age of 76 years. Born at Dronk, Friesland, he studied years at Antwerp, and first came into note by his "School for Vengeance," exhibited in that city in 1861. In 1870, shortly after his first wife's death, he came to England. But before this, in 1865, his work had been exhibited in the French Gallery, Pall Mall. In 1869 his "Pyrrhic Dance" was shown at the Burlington House. His first studio in this country was in Camden Town, but on his second marriage to Miss Laura Epps, in 1871, he removed to Townsend House, Regent's Park, and afterwards to a house in Grove End-road, St. John's Wood. Elected an Associate of the Royal Academy in 1876, he became a full member in 1879. He was a past-master of detail, revealing in the depicting of texture, and his archaeological, architectural, and classical knowledge were unrivalled among artists. He also displayed much skill and dexterity as a portrait painter, showing on the canvas something of the character of the subject portrayed. Six years ago he received the Royal Gold Medal of the Royal Institute of British Architects, and thereafter has been the only painter to be the recipient of this distinction. For many years he had been a welcome attendant and frequent speaker at the meetings at Conduit-street, and his remarks, delivered with great rapidity and in broken English, were always informative, and very often speeded with humour and with anecdote. From 1877 till 1901 Sir Laurence was an Hon. Associate of the Institution, and had since then in the still more select company of the Hon. Fellows. Lady Alma-Tadema, who was herself a clever artist, died three years ago.

Mr. Robert Herbert Measures, late managing director of Messrs. Measures Bros., Ltd., died on Monday in London, where he had been brought from his home at Pinnerham-on-Sea to undergo an operation. The deceased, it will be remembered, was sentenced last October to seven months imprisonment for a criminal offence of "falsifying the accounts of the company, hoping to tide over a bad time," as the Common Serjeant observed when sentencing him, commenting at the same time on the defendant's previous exertions and high character. Mr. Measures was seventy-four years of age.

Additions are about to be made to the Primitive Methodist chapel in St. Andrew's Road, Forest Hill, from plans by Mr. J. W. F. Popham.

A Local Government Bill inquiry has been held at Pontefract into an application of the corporation for sanction to a loan of £21,000 for the purchase of land and the erection of working-class dwellings. The plans have been prepared by Mr. W. J. Tennant of Ropergate, Pontefract.

A new elementary school is to be erected in Daniell-road, Tunno, at a cost of £2,600. The school, which will be 110ft. long and 56ft. wide, with six classrooms, will accommodate 250 scholars, and will stand 150ft. from the main two playgrounds, each 100ft. by 150ft. The building will be of Mass granite with facings of elvan. Mr. John Collier of Tunno is the builder.

The members of the St. Albans and Herts Architectural and Archaeological Society had an outing on Tuesday week to the ruins of the priory at St. Albans. They journeyed via Hatfield-road to Tyttenbanger House, through Hertfordshire lands. Mr. C. H. Ashdown conducted the party through the old house, and traced the history of the estate from the days of the monks to the time when the Abbot Wulfstan rebuilt the Manor House (1335). It was partly pulled down, and allowed to fall into decay. In 1401, began rebuilding, and in 1440 Henry Heywood finished the work. Mr. Ashdown made it as the finest monastic country residence in the kingdom. The drive was then continued to Salisbury Hall, where the party were received and entertained by Lady De la Rue, who conducted the members over the house, and pointed out the various features of interest. A vote of thanks to their hostess was proposed by Mr. A. E. Faulkner. The drive home was by way of the Old London-road.

PROFESSIONAL AND TRADE SOCIETIES.

THE BRITISH ARCHEOLOGICAL ASSOCIATION AT GLOUCESTER.—After an interval of sixty-six years, the British Archaeological Association is holding its annual congress this week at Gloucester under the presidency of Mr. Charles E. Keyser, F.S.A., of Aldermaston Court, Reading, with Mr. Richard Austin, the city librarian, as hon. congress secretary. The opening meeting was held in the nave of the Cathedral, where a descriptive address was given by the Dean, Dr. H. D. M. Spence-Jones. He remarked that those who walked outside and looked at the building for the first time would say it was a purely Perpendicular building, as they gazed at the general contour, the magnificent Perpendicular tower, large west window, and other features. But when they entered a little closer they saw signs of an older date—Romanesque windows and masonry, and even older bricks, belonging to the period of the Roman domination in Gloucester. When they entered, either by the great south porch or the western door, they realised at once that the idea of it being a Perpendicular abbey was negatived. They saw massive round columns, and these belonged to no Perpendicular period. Of those pillars they asked, where did they imitate them from? The late Professor Freeman, who taught him, said there was only one building on the continent of Europe that had these shafts or pillars, and that was at Tournai, and if they saw that they would say, "There's where the nave of Gloucester came from." Then, as they entered the choir of the nave, which was exactly the same as Gloucester Cathedral, though it was a little smaller, and probably built about ten years later, The visitors were conducted over the cathedral by the Dean, who took them to the south transept, then to the choir and ambulatories, and the Lady chapel. He described the different features, and paid special attention to the Lady chapel. Canon H. E. Waller also took charge of parties. At night there was a reception at the Guildhall by the Mayor and Mayoress. Canon Pazeley presented an address of welcome, as President of the Council, on behalf of the Bristol and Gloucestershire Archaeological Society, and Mr. Charles E. Keyser (President of the British Archaeological Association) delivered an address by Mr. F. C. Hyett on "Historic Gloucester." The corporation insignia, charters, and other civic records were displayed, and the town clerk, Mr. G. Sheffield Playkay, explained the chief points of interest connected with them. On Wednesday morning the morning was devoted to visits to the Mediaeval churches in the city, and in the afternoon members proceeded by bus to Ebbw Vale, via Crickley and Farnlip, the President (Mr. Keyser) and Canon Pazeley acting as guides in the inspection of the ancient church. The visitors returned to Gloucester via Bridlip and Cranham Wood, and visited Prinknash Park, by invitation of Mr. J. Dyer Edwards, president-elect of the Bristol and Gloucestershire Archaeological Society. In Gloucester the Bishop of Gloucester and Mr. Gibson were "at home" at the palace to members of the association. Yesterday (Thursday) the party went by steamer to Deerhurst and Tewkesbury, concluding with an inspection of the abbey. In the evening a meeting was held at the Gloucester Museum, where an address on the mural paintings of Gloucestershire was given by Mr. Keyser. The excursions to-day were to Bishop's Cleeve Church, Haynes Abbey, near Winchcombe and Sudeley Castle, and to-morrow the proceedings will be brought to a conclusion by visits to Brodland, Overbury and Peckold churches.

BRISTOL. The second monthly sketching expedition in connection with the Bristol Society of Architects took place on Saturday. Whitechurch was first visited, and after inspecting the church, an hour was allowed for sketching and memoranda. The members proceeded to Pablow, where they were received at the church by the vicar, the Rev. H. J. Ker-

Thompson, M.A., who gave an interesting description of the building and an account of the restoration work accomplished and still in progress. On the return journey a halt was made at Pensford, where there is a very fine specimen of an 18th-century mahogany Communion table.

CHIPS.

Mr. A. J. B. Wace, Fellow of Pembroke College, Cambridge, has been appointed Lecturer in Ancient History and Archaeology at St. Andrew's University.

The late Mr. Munro Hart, of 25, Fencham-road, Bedford, Bristol, and formerly of Bowood, Calne, architect and surveyor, left estate of the gross value of £10,963 3s. 8d.

A Local Government Board inquiry has been held at Pontefract into an application by the corporation to borrow £22,000 for the erection of working-class dwellings. Evidence was produced of overcrowding in the borough.

Good progress has been made in the erection of the new south transept to Selby Abbey. The gable is now completed, and the vaulted roof is being put into position. The old arches on the east side of the transept have been opened out. Mr. J. Ouldrif Scott, F.S.A., is the architect, and Mr. Ullathorne, of Selby, the builder.

Sutton Coldfield Town Council are applying to the Local Government Board for authority to prepare a town planning scheme. The area included is 6,600 acres, and will be the largest single town planning scheme yet brought out. Eighteen houses will be the maximum allowed per acre.

The Oldham Corporation are rebuilding a spiral-gauged gas-holder to the Holloway works. The holder, which is one of four, is of such capacity as 450,000 cubic ft., and will be formally opened in the autumn. The height from the ground line to the centre crown plate will be 156ft., and the height from the water line to the top curb will be 134ft.

Mr. W. O. Meade-King, on behalf of the Local Government Board, has held an inquiry at Gillingham, Somerset, into an application for the urban district council for sanction to borrow £250 in erecting a new plasma house at the public gardens, 220 for the extension of the same gardens, £200 to widen High-street, £350 for the front of the same, and £200 for sinking a borehole in connection with a water-level system scheme. Mr. W. H. Chown, surveyor, who prepared the scheme, gave evidence.

Interesting discoveries have been made at Wallsend, upon the site of the Roman camp of Scaemund, during excavation for foundations to an hotel. Portions of ramparts of the camp have been laid bare, and a wall of the north guard chamber within the east gateway. Hitherto the shape of the east rampart has been uncertain, but the present discovery has given archaeologists the clue which will determine the point. The remains of a gateway which ran through the camp to the east to the west gateways, and also of a building (a house) at right angles to the east wall, have been found. Portions of other walls which would have been connected with these have also been laid bare.

At the ancient Roman city of Eborac, Mon., the dedication tower phase, last week at the parish church of the renewed south aisle, and for monuments in the nave. A case of the relics in the church contains a Roman caryatid, and led into the walls are sculptured stones, the handwork of Roman masons. In the north porch, with its remains of a 12th-century nave may be seen a well-preserved Roman sundial, and a font recently rescued from basins in a latrine yard. In the tower edifice were recently deposited the carved remains of a sixth-century capital, and a 10th-century capital, which the Churchwarden, and built the new Collegiate Church in honour of the Holy and Universal Trinity.

The members of the Archaeological and Antiquarian Society to the American States of Northampton and Oakham held their annual meeting on Thursday in the week. The party, after breakfasting at the city, left for Northampton at nine o'clock, his visiting St. Basil's Church, which is Late Decorated in style, with a chancel rebuilt in the same style. He held the church in the middle of the 14th century, and the party round the church and the vicarage, of the 15th and 16th centuries were visited. The party also inspected the churches at East and West Hadden. At Spalding, the party visited the church, and were visited, Canon H. H. Jones, acting as guide. Mr. Christopher Markham, the hon. secretary, acted as guide at many of the places visited.

ventilators in the roof. The lighting will be by electricity. The exterior of the building will be of rustic bricks, and the dressings to the windows and doors of red Runcorn stone. The interior walls will be of imitation stone plaster. The columns to aisles will be of white Storeton stone. The roof is to be covered with Freecely slates. The following are the principal dimensions: Nave: length 58ft., width 27ft. lin., height from floor to roof 49ft.; total width across nave and aisles 52ft. 4in. Chancel: length 33ft., width 25ft., height from floor to roof 38ft.

This house has been designed by Messrs. Horace Field and Simmons, to the plans of Mr. Amos Faulkner, for Mr. Wm. Willett. Thin facing bricks supplied by Messrs. T. A. Lawrence and Sons, of Bracknell, have been used for the external work.

This block of houses has been designed for Mr. Wm. Willett by Messrs. Horace Field and Simmons, to the plans of Mr. Amos Faulkner, Mr. Willett's architect. The external facing is of white Portland stone. Both drawings are at the Royal Academy Exhibition this season.

Geologists and engineers are making estimates of how much Midway may be able to produce. At Oak W. East, an oil field in East Fathigh, about 200 miles up the coast, it is believed to contain about a billion barrels of oil. Four new wells are being constructed, 210 ft. deep, with 100 in. diam. The old ones being 160 ft. diam. These are at East Fathigh, Harwood, Aalidg Pro'dgen, and

2. *Construction.* The total Workmen's is about 100,000, and the plans by Mr. H. B. Williams, the architect, are as follows:

The Kent Light Railways Company are applying to the Light Railways Commission for authority to run their railways through the parishes of Little Mongeham, Northbourne, Hare Street, and Wingham.

A collection museum has been built for the 1st Cavalry Division from designs by Colonel E. H. Hootchess. B. E. P. will house the collections of uniforms, equipment and historic documents given by the old and present members of the corps.

The Halkidiki Urban District Council have applied to apply to the Local Government Board for sanction to borrow £1358 to carry out part of a proposed sewerage scheme, the cost of which, it is estimated, will cost between £20,000 and £50,000.

The Middlesex County Council and the Enfield Urban District Council have agreed to raise to the tramway standards in the centre of the Great North road from Highgate to Whetstone and adopt a system of side poles. It was reported to the Enfield Urban Council on Tuesday night that the work would cost £3,587, of which the local authority will pay about one-third.

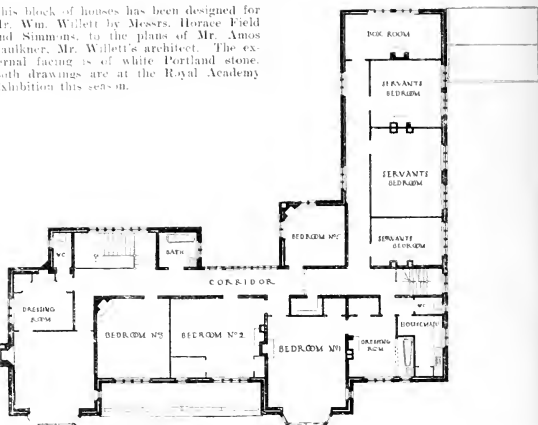
The Dominion Government propose to erect at Montreal a new Customs examining warehouse which will be the largest in Canada. Plans are being prepared for the erection of the building, which will cover an entire block, bounded by McGill, Yonville, and Norman streets, and the Place d'Yonville. The site is about 120 ft. in width, and 550 ft. deep.

Eds are being made to proceed with the work of restoring the fine old parish church of the town, which is of Norman date. Between 1859 and 1905 works of restoration were carried out at a cost of £9,000. It is now proposed to put down the present unsightly gallery, to rebuild the north transept on the lines of the new south transept, to complete the organ, and eventually to rebuild the aisles, for all of which about £5,000 will be required.

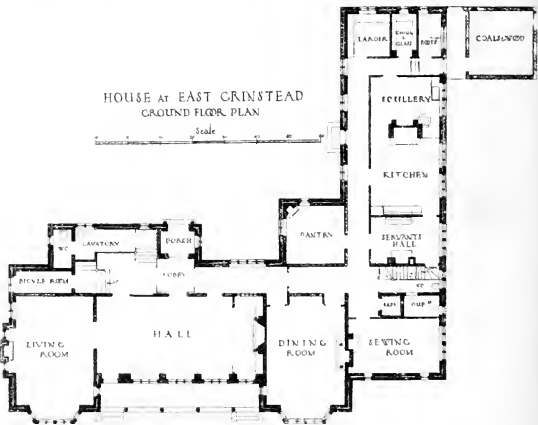
Cardinal Bourne has opened at Reading new Roman Catholic schools which have been built in the Abbey Runns under the auspices of St. James's Church. The new building is of flint and stone, and is therefore in harmony with the church, which stands on the same site, and with the fine rubble and solid walls of the 14th-century manor house, founded by Henry I. The school accommodates 250 children in three departments, and cost £10,000. Canon Soles was the architect and the contractor was Mr. Robert Gifford.

The foundation stone of the new isolation hospital, which the urban council of Eastleigh and Hishope-ke are erecting on a site between Kariakshi and Chandler's Ford, was laid the other day. The site, which is 132 acres, was purchased for £1,650, and on it will be built 40 buildings for the accommodation of 12 patients, the cost being £7,500. The buildings are designed by Mr. W. Wallace Gandy, surveyor to the council, and are being erected by Messrs. H. S. Jones & Co., builders, of Southampton.

These facts and sincerely deeds of the Staffed Industrial and Trade Society, Limited, have strongly decided to proceed with the new general premises in Yim-street. Since the building will be set back so as to leave a wide road with a width of 100 ft. to the street. While the rooms are complete, the society present a sincere approach to the public to see how low the price and the present new premises the Laminates. The society have a purpose in the ground, there is a building with seating accommodation of 500 and the offices will be situated in the building. The new premises in Yim-street and the building will be set back so as to leave a wide road with a width of 100 ft. to the street.



HOUSE AT EAST GRINSTEAD
GROUND FLOOR PLAN



The ground plan of this church consists of nave, north and south aisles, narthex, chancel, morning-chapel, clergy and choir vestries, and organ chamber. There are three main entrances to the church on the north, south, and west sides, with special entrance to morning chapel. The font is by the narthex. The church is to be heated by means of a low pressure hot-water system and ventilated by means of radiators with fresh-air intake by the walls, and extract

The style is Transition between Decorated and Perpendicular. The architect is Mr. J. Francis Doyle, 4, Harrington-street, Liverpool. This illustration is from the perspective in the Royal Academy this year.

HOUSE AT EAST GRINSTEAD.

The accompanying plans show the extent and somewhat unusual arrangements of this new country house in Sussex, which is rough-casted in the upper parts, with stone quoins and ashlar dressings, the ground stage being in stone, random coursed. The view, of which a double page is given, illustrates the

entrance front. The interior has many interesting features, with picturesque design in woodwork and other finishings designed by the architect, Mr. T. E. Collett, F.R.I.B.A.

PREPARATORY SCHOOL, BISHOP'S STORTFORD COLLEGE.

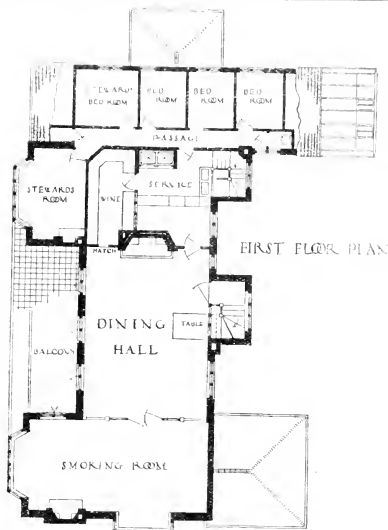
This preparatory school for Bishop's Stortford College, has been built to accommodate 40 boys, and the rooms are arranged to admit of a master's house being easily added. The materials used are local red hand-made bricks and tiles, flint and stone of various kinds being used as enrichments. All external woodwork is of oak. The building was carried out by Messrs. J. Day and Son, of Bishop's Stortford, under the superintendence of Mr. Herbert Tibberson, F.R.I.B.A., the College architect.

GOLF CLUBHOUSE, SWINLEY FOREST, ASCOT.

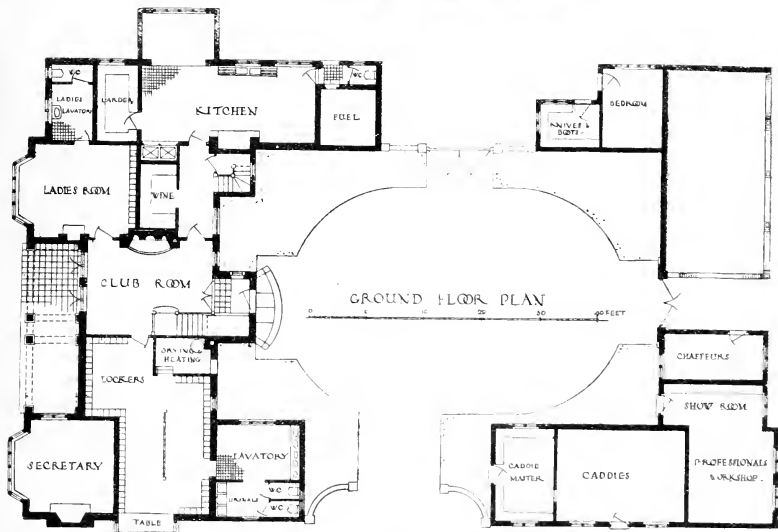
This very complete and extensive clubhouse has been built from the design of Messrs. T. E. Collett and Stanley Hamp. The two plans here reproduced show the lay-out of the building and various provisions included in the scheme, which is up to date, with every appointment for the convenience of the members. The building occupies a charming site, with which it assimilates with red-brick wallings and tiled roofs, broadly handled. The woodwork is finished white.

GREAT HORTON PUBLIC BRANCH LIBRARY, BRADFORD.

This building, which is now in course of erection, has a frontage to Cross-lane of 96ft., and a frontage to High-street of 40ft. The principal entrance is in Cross-lane, and has a vestibule opening into an entrance-hall, 28ft. by 9ft. This hall has been made as



FIRST FLOOR PLAN



GROUND FLOOR PLAN

GOLF CLUBHOUSE, SWINLEY FOREST, ASCOT.

spacious as possible, in order to avoid the congestion so often found in the halls of small libraries. The opening access system has been adopted, which, so far as Bradford is concerned, is a new departure. The reading-room, on the east side of the building, gives accommodation for 50 readers, and at the reverse end of the hall is the juniors' room, providing accommodation for 38

readers. In addition a staff room and librarian's office are provided, together with ladies' reading-room on the first floor, for 21 readers. The principal elevations are to be faced with local stone with ashlar dressings. The roofs will be covered with dark blue Westmorland slates. The internal walls are to be finished with plaster, and the suspended floors will be of fireproof construction and

finished with wood blocks. The whole of the internal woodwork and fittings, including screens, attendants' counter, and desks, will be executed in oak. The estimated cost of the building, inclusive of furnishing, will be about £3,500. The whole of the work is being carried out by local contract, under the supervision of Mr. W. Williamson, Licentiate R.I.B.A., the City Architect.



PROPOSED HOUSE

AT

EAST GRINSTEAD

T. E. COLLCUTT ARCHITECT

36 BLOOMSBURY SQUARE · W. C.



COMPETITIONS

Miss Talbot, of Margam Park, is building a new church at Oakwood, in the hill district of the parish of Port Talbot. Mr. F. R. Kempson, F.R.I.B.A., of Hereford and Cardiff, is the architect.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

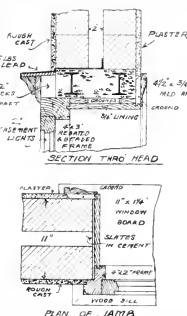
All else being equal, brief replies will stand the best chance. We emphasize this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We divide the guinea equally between Mr. W. H. Poole, Mr. P. D. Geall, and Mr. Frank Wilson.

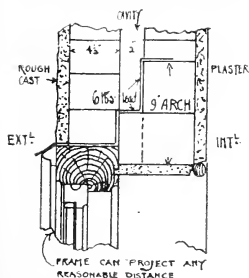
REPLIES.

[13108].—PROJECTING WINDOW. The following is a method for constructing a window as required by "Ajax." The opening is to be bridged by a cement and coke-brace lintel, strengthened by a 2 in. x 3 in. by 2 in. by 2 in. S.S. If desired, the lintel could be made 2 in. in width, and not 1 in., as shown, and would suit all requirements equally as



well. By using the steel joints, the depth can be reduced considerably, this object being maintained to obviate exposed lead-work. This is also assisted by fixing a small built-up cornice to head of window, as shown. As regards the laths, the only efficient method of treating such is to carry the cavity right through, and to close it with slate bedded and jointed in cement. I think the sketches will sufficiently explain any further details.—P. D. Geall, City Surveyor's Office, Chichester.

[13108].—PROJECTING WINDOW.—Sketch here shows the necessary details. Trouble generally arises with these external cementings, owing to the

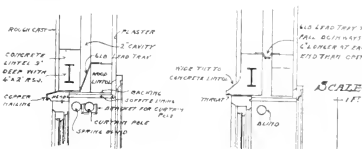


internal brick check-reveal being omitted. The lead flashing is generally taken across the lead only, but there is no reason, except to save expense, why it should not be carried down the sides of window in

the same manner. The cost of a window of this width (see Fig. 1) the flashing is about 1 lb. of lead, 2 1/2 in. Nottingham, 1 lb. of lead.

[13108].—PROJECTING WINDOW.—I would like to see a couple of sketches showing how "Ajax" may finish his window. I would draw his attention to a depth of concrete lintel (recommended) to equal three courses of bricks. (b) The absence of masonry cast against lead. (c) Provision for blind and curtain. (d) And often forgotten by the architect, but

BY 13108



"A" SECTIONS "B"



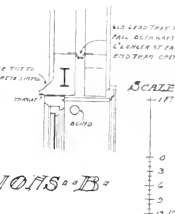
"A" PLANS "B" METHOD

apparent to the housewife, (b) Method of stopping cavity. Otherwise I think the sketches are self-explanatory.—K. H. Reed, Lecturer on Building Construction, Gloucester Technical School.

[13108].—PROJECTING WINDOW.—If the plaster is allowed to run across the soffit of window opening without any lead above same, any moisture finding its way into the cavity above the window would run down the inside of outer 1/2, and ruin such soft plaster. The suggested 2 in. lintel does away with the above difficulty, and the "A" for slince on arch or concrete is not covered with lead, and only the usual 2 in. or so of lead would show on the outer

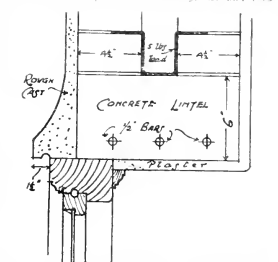
double course of lead. The concrete bedded in cement and breaking out, since lead above the projecting architrave frame, and having a projection of about 1 in. beyond the face of the frame, and at each end, and back out the masonry work over and over. The lead work is to be a 1 in. x 1 in. and 1/2 in. x 1/2 in. No. 10 or 11. Granite post, 1/2 in. x 1/2 in. x 1/2 in.

[13108].—PROJECTING WINDOW.—The accompanying sketch shows the method which I suggest.



"A" PLANS "B" METHOD

as being the most suitable for the conditions as mentioned in question. A lintel of concrete is shown under the thickness of architrave, and lead across same under cavity. The use of lead over head of frame seems unnecessary, and it need only be on the joint between architrave and lead.

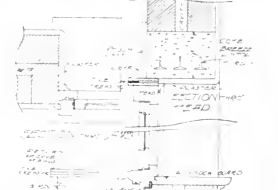
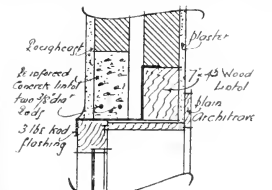


face of wall. The lead should be taken right over head of window frame, and a drip formed on outer edge. Any moisture in cavity would then find its way out, and so drip clear of window frame.—J. Morton Jones, St. Mary's Chambers, Abercromby, Mon.

[13108].—PROJECTING WINDOW.—(a) The section shows suggested method of getting over difficulty as regards the unsightliness of lead showing in face of

is bound to appear unsightly. In the sketch the roughcast finishes with a gentle sweep projecting 1 1/2 in. beyond window-frame, and is completed with a projecting under—H. J. Wilson, A.R.E.B.A., Brookdale, Park Road, Peterborough.

[13108].—PROJECTING WINDOW.—The sketches show 4 in. by 2 in. laths and 1 lead, 4 by 4 in. laths all having slightly rounded corners, and with 1/2



roughcast walls. The concrete lintel is 2 in. deep, reinforced with 2 in. diam. steel rods. The stile of window-frame could be related in plan, so as to fit against brickwork to afford security against being blown in. (b) The method shown necessitates the use of wood linings and architraves to inside of jambs and head. The cavity on plan would be better if stopped at all openings with brick cut to fit.—J. W. Thorpe, 5, Woodville-terrace, Lytham.

[13108].—PROJECTING WINDOW.—The method of weathering a window such as described which I used in a similar case was as follows.—Insert a

round pegs at top of jambs and mullions, projecting 2 in. The sill to be cut of 2 in. by 2 in. oak. The casing is shown over the lead with the end returning (see sketch). This "Ajax" will find to have much nicer appearance than the lead flashing. I suggest a coke-brace lintel over the opening, formed in situ, of one part cement to five parts coarse granitic coke

painter will find it indispensable; but its scope of usefulness is far wider. Not only the architect and builder should get it, but all who have to do with painting. If some of our municipal authorities and administrators had it, for instance, it might save litigation of the sort rather under discussion just now about "lowest tenders."

It is just two hundred years ago that a Greek physician of the Imperial Prussian Court obtained a concession for working the large asphalt beds of Neuchâtel, Switzerland, which at that time belonged to Prussia. But the enterprising physician had no luck as he failed to arouse the interest of the financiers. It was much later, at the time of the discovery of the asphalt-beds near Seyssel, in 1812, that closer attention was paid to this mineral, and preparations were made for its mining. Yet another twenty years elapsed before Count Sasseny succeeded in drawing the attention of builders and allied industries to this material.

It is not generally known that the operation of soldering lead pipes with lead is "lead burning" of to-day was known and practised in the Middle Ages. Reference to this matter is made in one of the books of Vincent de Beauvais (a recorder of the Court of Louis IX. of France), who died in 1264. Following is the passage in question, taken from an essay on tin (vol. viii., part i.): "If tin is exposed to a moist atmosphere, it will corrode; and human ingenuity has of late invented useful improvements by which it is possible to unite leaden subterranean water-pipes with the aid of molten lead instead of soldering with tin. Pipes soldered with the latter metal never lasted long, but if lead is used it will last for all time."

A composition for use in the manufacture of floors, patented by Scholz, 48, Cleveland-street, Birkenhead, consists of magnesite, wood-flour, and colouring matter brought to a plastic condition by the addition of a solution of magnesium chloride to which has been added olein, phosphoric acid, and "blowed" linseed-oil (the scum that collects in the boiling of linseed oil). About 71 per cent. of magnesite, 20 per cent. of wood-flour, and 9 per cent. of colouring matter are mixed in a dry powder, and a solution of magnesium chloride at 21° B., to which are added small quantities of phosphoric acid, olein, and blowed linseed-oil, is mixed with this powder to produce a composition which can be laid with a trowel.

Many builders fail to get best prices for their old metal—brass, bronze, copper, lead, solder, tin, zinc, etc.—because they do not find the best market, and get direct to the founder. In these days, in this, as in other matters, there is no room for the middleman. The man to get at is the man who is anxious to buy because he can promptly realise at a fair profit. Those with experience tell us that such buyers are Fry's Metal Foundry, 25-27, Holland-street, Blackfriars, who give best cash prices for all non-ferrous old metals. Iron and steel cost as much to handle, generally, as they are worth. So if you have a little mine of forgotten wealth in your yard, why not accumulate it by selling because prices offered seemed so inadequate, ring up Hop 3754 and ask Fry's to put it in wholesome circulation once again, and the price into your pocket.

Mr. George Johnston, of Belfast, has been appointed building inspector for the surveyor's department of the Belfast Corporation.

The death occurred on Tuesday week, at the age of 75, of Mr. George Saxby, brick- and tile-maker, of Seal Chart, Mid-Kent. A well-known figure to many inhabitants of Sevenoaks and the district, Mr. Saxby was engaged in his business in 1879 from the late Mr. Reynolds, in whose employ he once was.

The Great Western Railway Company is reconsidering its scheme for the new cutting and breakwater works at Fishguard following advice given by Sir William Matthews, the Dover Harbour consulting engineer, who has twice inspected the harbour with Captain John Pritchard. The company has no intention, however, of abandoning the deep-dredging and other harbour-improvement works at Fishguard.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY (To-morrow)—Institution of Municipal and County Engineers, S.E. District Meeting at Bridlington, 10.30 a.m.

WEDNESDAY—Institution of Municipal Engineers Joint Meeting of North-Eastern and Eastern Districts at Peterborough. Meet at G.N.R. Station, 12.15 p.m.

THURSDAY (To-morrow) July 1 to 6—Visit to Liverpool of the Architectural Associations of London and Dublin. Supper at the Liverpool University Club, Saturday, 8 p.m.

Trade News.

WAGES MOVEMENTS

ANALOGISATION OF BUILDING WORKERS. A private conference of trade unions representing men employed in the building trade was held in London on Friday to consider the proposed analogisation of the men under the title of the Analogised Building Workers' Union, with a view to maintaining "a fighting organisation working to improve the conditions of the workers." At the end of the meeting, Mr. H. W. Wainman, M.P., presiding, the conference, which represented 15 unions, had approved the scheme. A ballot of the members concerned will be taken not later than September 30.

The death occurred at his residence, Rybank, Exeter, on Saturday, of Mr. H. H. Wainman, aged 71, head of a firm of church furniture and ecclesiastical workers.

At Linfield, Sussex, on Saturday, there was dedicated to the public use a fountain as a memorial of the Coronation of King George V. The memorial was designed by Miss Leslie, a sister of Mr. Leslie, R.A.

The city council of St. Albans are applying to borrow £750 for works of street widening, and improvement at the corner of Beconsfield-road and Victoria-street, at the corner of Hatfield-road and Upper Lutimere-road, and at the corner of Union-lane and Folly-lane.

A memorial to Mr. Alexander Anderson, the poet, better known as "Stranraer," has just been erected at the village of Kirkconnell, the birthplace of the poet. The monument is built of Galloway Bridge red freestone, and stands 14 ft. high. In the centre is placed a life-size medallion of the poet, by H. S. Ganley, A.R.S.A.

Great changes are about to be made in the Dresden Royal Court theatre. The Royal Opera House, designed by Semper, has been completely restored at a cost of £100,000, and the stage has been provided with all the latest mechanical appliances. It will probably be reopened on September 21.

The bi-centenary fête in celebration of the birth of Jacques Rousseau were opened on Monday at Emmenouville, where, in a modest refuge given him by the Marquis de Girardin, Rousseau died in 1778. A monument was unveiled in the town on Monday; it is the work of the sculptor Henri Greber, and takes the form of a statue of Rousseau.

The Bishop of Kensington has laid the foundation-stone of a new church at Ashford, Middlesex, to be used as a chapel-of-ease to the parish church, and to be dedicated to St. Hilba. The nave and aisles only are now being built, to the designs of Mr. J. S. Alder, at a cost of £4,700, and to seat 530; but the completed church will cost £7,500, and will seat £750.

Yorkshire master builders, meeting in Sheffield on Friday, complained that when they took on the National Insurance Act they did not know what they were undertaking. A strong protest was made at the fact that builders' sons charged and employed by their fathers should have to be registered at the labour exchanges as ordinary workers, and regarded as an indignity which no employer would entertain. The members were strongly recommended not to enter at present into any arrangement with respect to contributions and to leave the question of the exchange to the Bradford Corporation, appointed to consider the question of the building regulations. After discussion, a resolution was passed to ask the Government Board to hold an inquiry into the subject. The question of the adequacy of the building by-laws was brought into prominence by the presence of a builder and the dismissal of a building inspector.

TRADE NOTES.

The new infirmary hospital, Earlestown, is being supplied with Shalanda double-fronted patent Manchester Stoves and patent Manchester Grates by Messrs. E. H. Shorland and Brother, Ltd., of Falsworth, Manchester.

Under the direction of Mr. J. A. Macgregor, architect, Castle Douglas, Scotland, the "Royal Victoria Ventilation (Natural) embracing Boyle's Latest Extension of the Ventilators and Air-Inflets" has been applied to Corsick Church, Corsick, Scotland.

Messrs. William Potts and Sons, Ltd., of Leeds, are making a new clock for Hartwith-Wharfedale, West Yorks. The clock will show the time with regard to the extra day of the leap year, one facing northwards and the other dial towards the south. It will be painted and gilded, with Lord Gorthorpe gravity escapement and compensation pendulum attached, and other improvements.

CHIPS.

The Norwich Education Committee have adopted plans by their architect, Mr. Brown, of that city, for a new council school in Cry-road, Lakenheath, estimated to cost £9,700. The school will be on the central hall plan.

The Whitstable Urban District Council has unanimously sanctioned the plan prepared by Mr. Weeks, of Messrs. S. Graham and Weeks, 75 Westminster, London, for the treatment and purification of the sewage of Whitstable.

As a memorial to King Edward VII., the new operating theatre and recovery wards attached to the Cottage Hospital, Market Drayton, were formally opened on Saturday. The cost of the additions is over £300. Mr. T. Healey was the builder.

Mr. William Edmund Wallis, A.R.I.B.A., late of Hill Cottage, Caterham, and Buckingham-street, died at St. Catherine's, Littlehampton, on Wednesday last. He had been an Associate of the Royal Institute of British architects for thirty years.

The City Corporation adopted at their last meeting an arrangement for acquiring for £250,000, secured by a mortgage on the land, the ground needed to widen the public way in No. 58, Fleet-street. The amount of the claim was stated to be £7,850.

The Kildare County Council, at its quarterly meeting, approved a scheme to construct and work a 12½ mile railway line from Arly and the coalfields at Graceland in Queen's County. The length of the proposed line is 10½ miles, of which 3½ miles are in Kildare, and the remainder in Queen's County. The estimated cost of the project is £470,725. The proposed gauge is 5 ft. 6 in.

Mr. Nisbett, the architectural surveyor to the Dean and Chapter of Winchester, has designed carved oak covers for the service books to be used by the King and Queen at the annual service on November 15. The border of the service book is the work of St. Ethelwold, which was transcribed in the *Scriptorium* of St. Swithun's Monastery, Winchester, in the tenth century.

On Wednesday week the Coronation permanent pool at Walsby—an open-air swimming-bath—was formally opened by Lord Peckover, and handed over to the mayor and corporation. The bath has been erected on the side of the river. It has been constructed by Messrs. Sedgwick and Son, of Grimsby, and has cost just under £500. The bath measures 132 ft. by 30 ft., and the depth varies from 3 ft. 5 in. to 6 ft. 5 in.

An island site for the erection of a new headquarters building of the National Naval Cadets has been acquired, in the Wandsworth-road, close to the present headquarters, that corps. The area of the land is 18,000 square feet, the frontage on the Wandsworth-road being 100 ft., and the depth 180 ft. It is proposed to erect a building in the Tudor style, after designs by Mr. J. March, of Houghton, 211, Cannon-road, S.W. The total cost, including the land, which is freehold, will be £10,000.

The city council of Bradford discussed on Monday the appointment of a city surveyor and sanitary engineer, and the council expressed the opinion that it would be preferable to separate the offices, so that the sanitary inspector could devote the whole of his time to the duties of his office, and the city engineer to the Housing Regulations, 1910. The highways and sanitary committee recommended the separation of the offices, but the council, by seven votes to six, resolved to make a joint appointment, and Mr. J. H. H., who has been a city housing inspector, was appointed.

LATEST PRICES.

IRON.

[illegible]

OTHER METALS.

Category	Selection	Population	425/10	425/11	425/12	6
Treated Water Pipe, Town	Country	25	7	6	—	—
	County	23	6	6	—	—
Treated Water Pipe, Town	Country	24	2	6	—	—
	County	24	2	6	—	—
Water Tunnel Inside, Town	Country	25	2	6	—	—
	County	25	2	6	—	—
Water Pipe Tunnel Inside, and	Country	26	17	6	—	—
	County	27	12	6	—	—
Water Gas Pipe, Town	Country	25	7	6	—	—
	County	26	7	6	—	—
Water Gas Pipe, Town	Country	25	7	6	—	—
	County	26	7	6	—	—
Water Gas Pipe, Town	Country	26	4	6	—	—
	County	26	4	6	—	—
Water Gas Pipe, Town	Country	24	15	6	—	—
	County	24	15	6	—	—
Water Gas Pipe, Town	Country	81	0	—	97	10
	County	81	0	—	97	10
Water Gas Pipe, Town	Country	230	0	—	240	13
	County	230	0	—	240	13
Water Gas Pipe, Town	Country	211	10	—	212	0
	County	211	10	—	212	0
Water Gas Pipe, Town	Country	21	15	6	—	—
	County	21	15	6	—	—
Water Gas Pipe, Town	Country	22	2	6	—	—
	County	22	2	6	—	—
Water Gas Pipe, Town	Country	24	0	—	—	—
	County	24	0	—	—	—
Water Gas Pipe, Town	Country	33	10	—	—	—
	County	33	10	—	—	—
Water Gas Pipe, Town	Country	11	10	—	—	—
	County	11	10	—	—	—
Water Gas Pipe, Town	Country	0	11	—	—	—
	County	0	11	—	—	—

TIMBER.

[illegible]

FURNITURE AND HARDWOOD

	Peak	Burned	per 100 Cuts	to 100	0	to 100	0	to 100	0
Tek. Java, per load	Cut	100	0	0	0	0	0	18	0
Oak Planks U.S.A. imported									
" Beards "	" Prim.	0	2	4	0	0	2	2	0
" " " " "	" Mdm.	0	1	0	0	0	2	2	0
" " " " California Red oak		0	1	8	0	0	0	0	0
Pitch " sawn planks		0	1	0	0	0	0	1	0
" " Austria Waino		0	7	0	0	0	0	8	0
Walnut, Prime boards and planks		0	5	0	0	0	0	6	0
" Walnut Mdm. "		0	4	0	0	0	0	0	0
Greenheart Hewn logs		0	3	6	0	0	0	1	0
Cedar Cedar-box		0	3	8	0	0	0	1	0
Sugar Pine Imp. sawn boards, prime		0	2	3	0	0	0	2	0
Ocham Imp. sawn boards, prime		0	1	10	0	0	0	0	0
Mahogany St Domingo, Cuba, and Honduras		0	0	3	0	0	0	6	0
" African, Assinie, Ac		0	0	4	0	0	0	3	0
" Laos and Benth		0	0	0	0	0	0	4	0
" Senegal and Cape Lopez		0	0	2	0	0	0	3	0
Gaboon		0	0	13	0	0	0	0	0
Satowood West Indian		0	0	10	0	0	0	2	0
Rosewood Per ton		7	0	0	0	0	0	12	0

STONE.

Red Mandie, in blocks	per foot cube	£0 2 6
Barley Dale, ditto	"	0 2 3
Red Corscilli, ditto	"	0 2 3
Cockburn Hill Free-stone, ditto	"	0 2 3
Ancoaster, ditto	"	0 1 0
Greenshill, ditto	"	0 1 0
Chinmark, ditto tin truck at	"	
Nine Elms, ditto	"	0 1 3
Hard York, ditto	"	0 2 0
Bedfordshire, sawn both sides,		
loading, random sizes	per foot sup.	0 2 8
Ditto ditto tin, slab sawn two		
sides, random sizes	"	0 1 3
All F.R. London.		
Bath Stone, delivered on rail		
at quarry stations	per foot cube	0 1 0
Delivered on road wagons,		
Paddington Depot	"	0 1 4
Ditto, ditto Nine Elms Depot	"	0 1 8
Beer Stone, delivered on rail		
at Seaton Station	"	0 1 0
Ditto, delivered at Nine Elms		
Station	"	0 1 4
Portland Stone, in random blocks of 2½ ft. average		
size, delivered on footways	Brown White	
Delivered to railway depot	White Bed. Base Bed.	

SLATES

	in. in.	t. s. d.	per 1,000 of
Blue Portmadoe	20 x 10	12 12 6	1,200 at r strain
Blue Banker	20 x 10	13 2 6	" "
First quality	20 x 12	13 17 6	" "
" "	20 x 10	13 0 0	" "
" "	20 x 12	13 17 6	" "
" "	16 x 8	7 5 0	" "
Emerald unfading	20 x 10	13 17 6	" "
Green	20 x 12	16 7 6	" "
" "	18 x 10	13 5 0	" "
" "	16 x 8	10 5 0	" "
Permanent green	20 x 10	11 12 6	" "
" "	18 x 10	9 12 6	" "
" "	16 x 8	6 12 6	" "

BRICKS

	All prices net			
	11	6	per 1,000	alone, ditto
Hard Sto. Ch. Bricks	1	6	0	river
Guzzles	1	6	0	
Packed Stocks for				delivered at
Floetons	2	10	0	any Stn.
Pressed Wire Cuts	1	6	0	
Best Wire Cuts	1	8	0	
Best Farinham Red	3	12	0	
Best Red Pressed				
London Faen	5	0	0	
Best Blue Pressed				
Staffordshire	3	15	0	
London Bullfinch	3	15	0	
Best Stourbridge				
Firebricks	3	11	0	
Best Red Ac-				Net, delivered
crington Plastic	1	10	6	full truck loa
Facine Bricks				in London.
Ac-crington Best Flat Plastic				Facine Bricks
Bricks				£2
ditto Second Best Plastic ditto				10
ditto Ordinary Second Bricks				12
ditto Plastic Engineering Bricks				1 17
Sewer Arch Brick not more than 32 in				0
ditto ditto ditto ditto ditto				0
ditto Chimney Bricks fit for outside work				2 6
ditto ditto ditto through and through				0 2
ditto ditto ditto ditto ditto ditto ditto				0 2
ditto ditto ditto ditto ditto ditto ditto				0 2
ditto ditto ditto ditto ditto ditto ditto				0 3
ditto ditto ditto ditto ditto ditto ditto				0 1
Ac-crington Air Bricks, 9 x 4 course deep, each 9				0 1
ditto ditto 9 x 4 course				0 0
Ac-crington Camber Arches—				0 1
1 course deep, 4 1/2" soffit, for foot opening				0 0
ditto ditto ditto ditto ditto ditto ditto				0 1
ditto ditto ditto ditto ditto ditto ditto				0 2
ditto ditto ditto ditto ditto ditto ditto				0 2
ditto ditto ditto ditto ditto ditto ditto				0 2
ditto ditto ditto ditto ditto ditto ditto				0 3
ditto ditto ditto ditto ditto ditto ditto				0 1
Net free on rail, or free on boat at works.				

GLAZED BRICKS

	HARD GLAZES, (PER 1000.)					
	White, Ivory, and Salt Glazed.	Rest Seconds.	Buff and Cream.	Other Colours.	Second Colours.	
Stretchers—	£10 17 6	£9 7 6	£12 7 6	£16 7 6	£10 17 6	
Quoins, Bullnose, and Plinths, Square—	10 7 6	8 17 6	11 17 6	15 17 6	10 17 6	
Double Stretchers—	13 7 6	12 7 6	16 7 6	19 17 6	14 7 6	
Double Bullnose—	16 7 6	14 17 6	19 7 6	22 17 6	16 17 6	
One side and two ends, square—	13 7 6	11 17 6	15 7 6	19 17 6	13 7 6	
Two sides and one end, square—	18 7 6	16 17 6	21 7 6	25 7 6	17 7 6	
Plinth and Hollow Bells, Stretchers and Headers—	15 17 6	11 7 6	20 7 6	23 7 6	15 17 6	
Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres—	each 31. each 61. each 33. each 34. each 34. each 34. each 34.	each 31. each 61. each 33. each 34. each 34. each 34. each 34.	each 31. each 61. each 33. each 34. each 34. each 34. each 34.	each 31. each 61. each 33. each 34. each 34. each 34. each 34.	each 31. each 61. each 33. each 34. each 34. each 34. each 34.	

nd Headers
\$1 each \$1 each \$1

Internal and External Angles	1 2 each	1 2 each	1 2 each	1 2 each	1 2 each
Cell Bullnose, Strechers and Headers	6d each	6d each	6d each	6d each	5d. each
Magonia or Soft Glazed Strechers and Headers	6d each	6d each	6d each	6d each	Per 1,000
Compass bricks, circular and arch bricks of single radius 60 to 1,000 over above list for their respective kinds and colours					£21 17 6
Canal bricks, any kind or colour, 18 in. each					26 17 6
Strechers cut for Closers and Nicked Double Headers					By 2 in.
These prices are carriage paid in full truck loads to London Stations.					
Thames Sand	s. d.	7	6	per yard, delivered.	
Pit Sand	"	7	0	"	
Thames Ballast	"	6	0	"	
Best Portland Cement	31	0	to 31	0	delivered
Best Ground Blue Lias Lime 20	"				"
Exclusive of charge of sacks.					
Grey Stone Lime	s. d.	13	6	d. Per yard	
Stonebridge Fireclay in sacks	25	6	to 14	0	per ton at

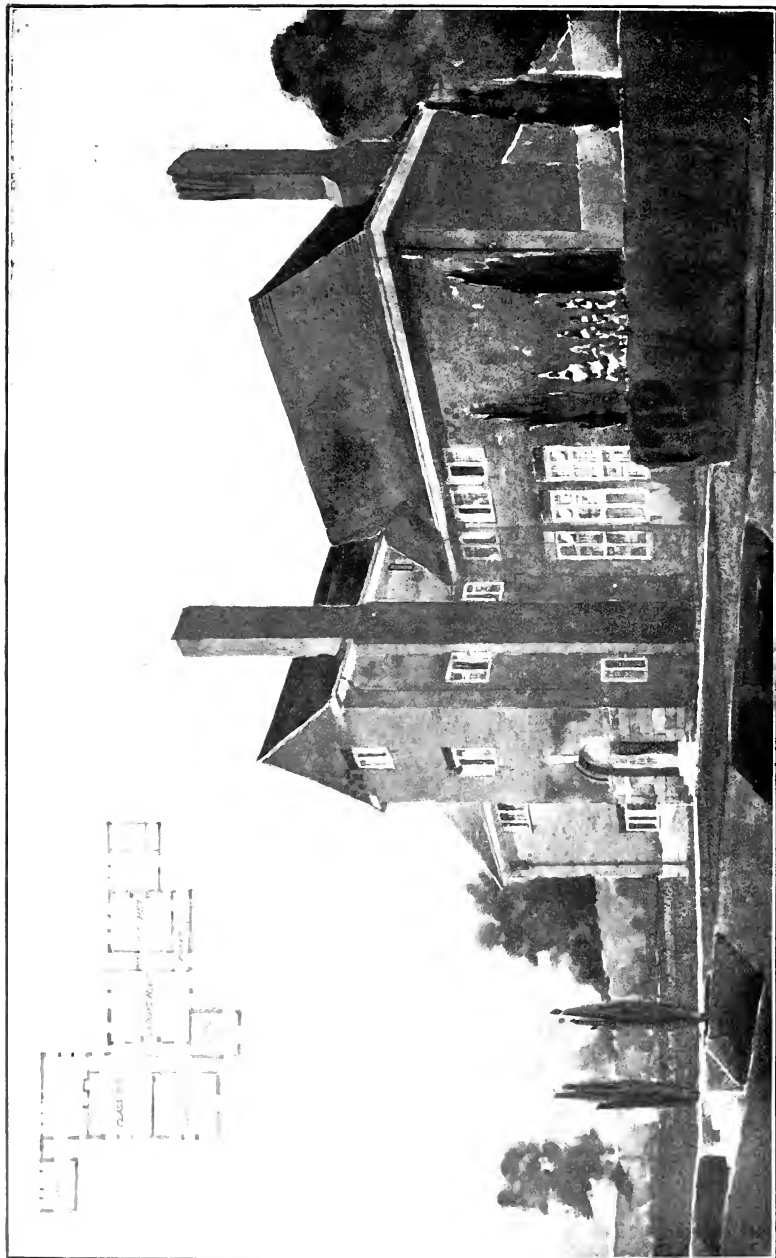
TILE:

	sq. ft.	per 100 sq. ft.	per 100 sq. ft.
Plain red roof tiles	8	0	per 100 "
Hip and Valley tiles	3	7	per doz. "
Broseley tiles	50	0	per 100 "
Ornamental tiles	50	0	per 100 "
Hip and Valley tiles	4	0	per doz. "
Railton red, brown, or brimble	37	6	per 100 "
Red, Edwards'	60	1	per doz. "
Ornamental do.	3	0	" "
Valley tiles	3	0	" "
Selected " Perfecta " roofing	46	0	per 100 "
Plain red tiles, " Peake "	48	6	" "
Ornamental do.	3	0	per doz. "
Hip tiles	5	0	" "
Valley tiles	3	0	" "
Rosemary " brand plain tiles	48	0	per 100 "
Ornamental tiles	50	0	" "
Hip tiles	4	0	per doz. "
Valley tiles	3	0	" "
Staffordshire (Hanley) Reds or	42	6	per 100 "
brimble tiles	47	6	" "
Handmade sand-faced	4	0	per doz. "
Hip tiles	3	6	" "
" Valley tiles	50	0	per 100 "
" Handmade " brand plain tiles, sand-faced	47	6	" "
Pressed	50	0	" "
Ornamental do.	4	0	per doz. "
Hip tiles	3	6	" "
Valley tiles	3	0	" "

OILS

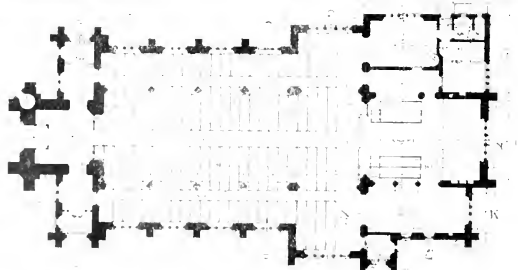
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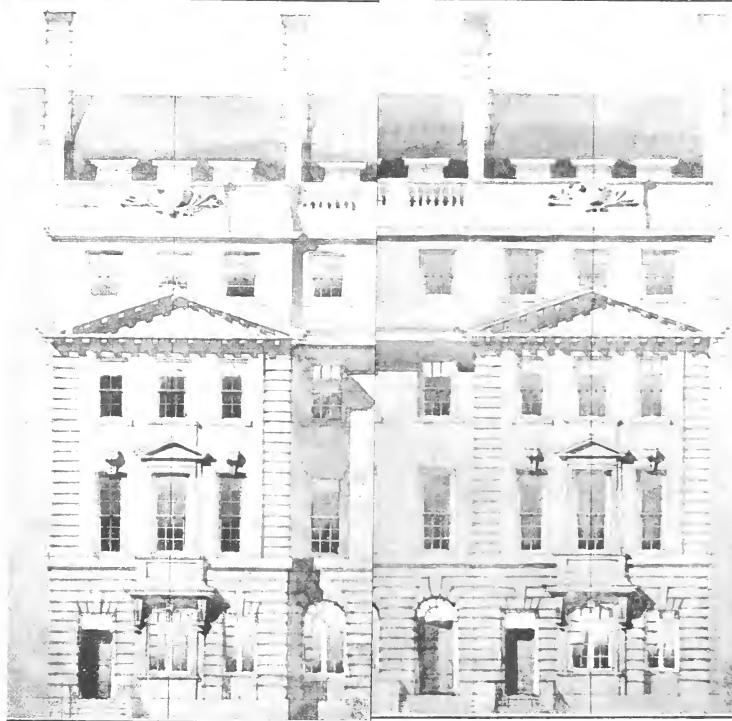
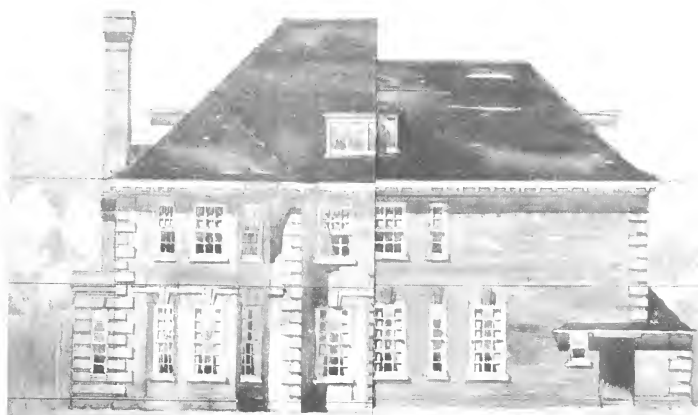


PREPARATORY SCHOOL, BISHOP'S STORTFORD COLLEGE.—MR. H. C. DIBBSON, F.R.I.B.A., Architect.



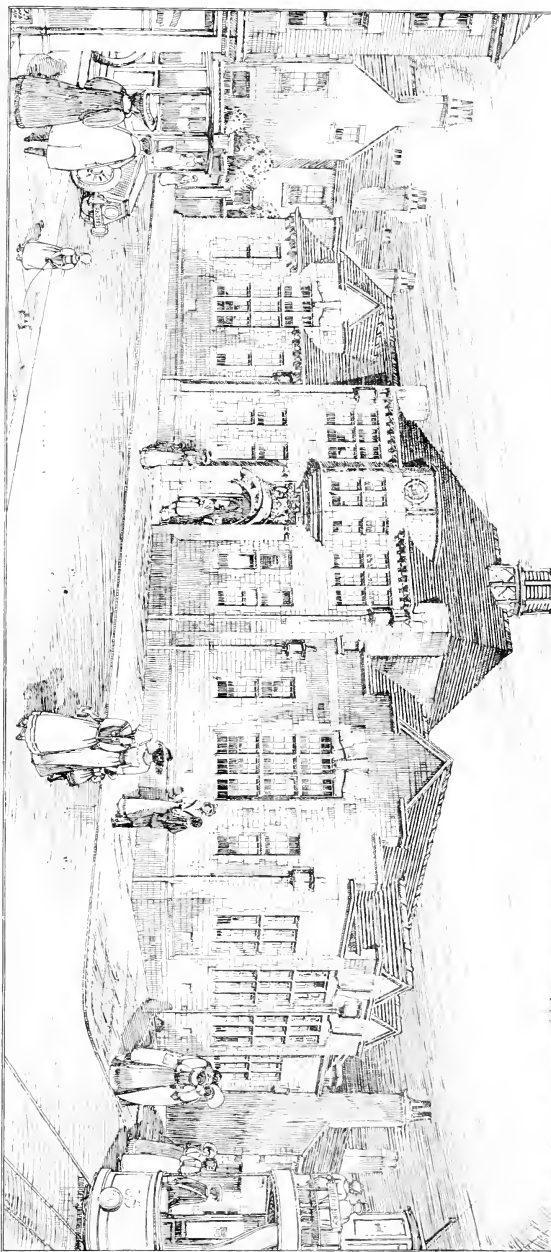
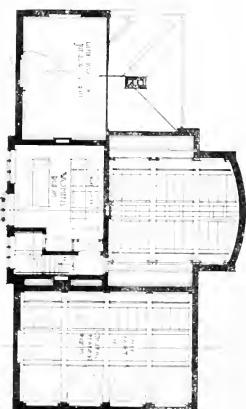


CHURCH OF ST. BARNABAS, UNDER MOSSLEY HILL.
MR. T. FRANCIS DOYLE, F.R.I.B.A., Architect.



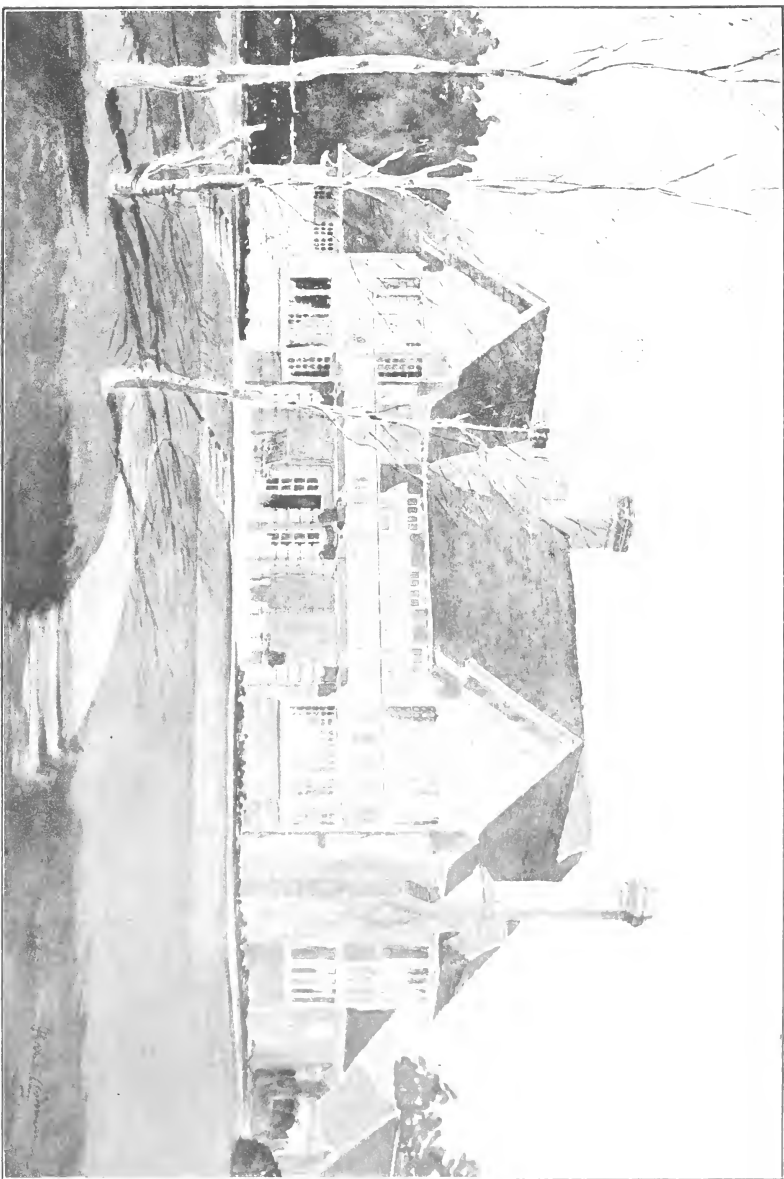
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GOLF CLUB HOUSE, SWINLEY FOREST, ASCOT. Messrs. T. E. COOPER and STANLEY HARRIS, Architects.







